

# Service Manual

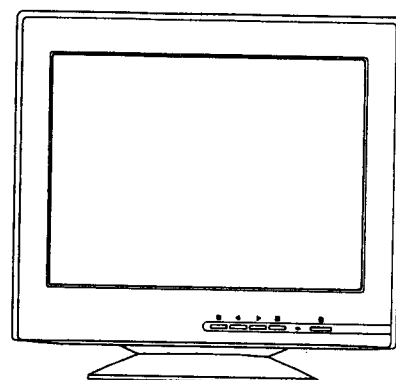
Multi-Scan Color CRT Display

**PanaSync** S110

MODEL TX-D1F63-M/-U/-SW/-E/-G

**Chassis No. HV10S**

**Chassis Family No.21HV10S**



Suffix of Each Model and Destination

-M	North America	(Power Cord:UL/CSA type	No. TSXA023 enclosed)
-U	U.K.	(Power Cord:U.K. type	No. TSX8493 enclosed)
-SW	Switzerland	(Power Cord:SEV type	No. TSX8492 enclosed)
-E	Germany	(Power Cord:VDE type	No. TSX8484 enclosed)
-G	Other Europe and Asia	(Power Cord:VDE type	No. TSX8484 enclosed)

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# Panasonic

## **WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

# SAFETY PRECAUTIONS

## 1 CAUTION:

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

## 2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

## 3 FIRE & SHOCK HAZARD

3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.

3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.

3-3 All the protective devices must be reinstalled per original design.

3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

## 4 LEAKAGE CURRENT COLD CHECK

4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.

4-2 Turn the CRT display power switch "on".

4-3 Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be 1.8 megohm minimum.

## 5 LEAKAGE CURRENT HOT CHECK

5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

5-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15 $\mu$ F capacitor between each exposed metallic part and a good earth ground (as shown in Fig.1).

5-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15 $\mu$ F capacitor.

5-4 Move the resistor connection to each exposed metallic part and measure the voltage.

5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

5-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground. A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

*Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.*

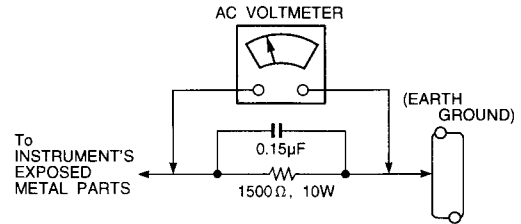


Fig.1

## 6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only Panasonic replacement picture tubes.

## 7 X-RADIATION

**WARNING :** The only potential source of X-Radiation is the picture tube. However when the high voltage circuitry is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

*Note: It is important to use an accurate periodically calibrated high voltage meter.*

7-1 The procedure for adjustment high voltage is as shown on page 23.

7-2 If can not be adjust 24.5 kV at immediate service is required to prevent the possibility of premature component failure.

7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

## IMPORTANT SAFETY NOTICE

There are special components used in this CRT displays which are important for safety. These parts are identified by the international symbol  $\Delta$  on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacture's specified parts to prevent X-RADIATION, shock, fire or other hazards. Do not modify the original design or this will void the original parts and labor guarantee.

# GENERAL INFORMATION

## 1. OUTLINE

This monitor is 21 inch ( 20.0viewable )multi-scan color CRT display with the following features.

IIC Bus Micro processor & Enhanced OSD are newly introduced, which optimize the function.

## 2. FEATURES

### 2-1 SSP-Lite LSI (Advanced Super Signal Processor) mounted

Precise wave forms are generated for the correction of each geometric distortion.

### 2-2 Power Saving

Built-in Power Saving function based on VESA-DPMS standard.

Power energy shall be saved by controlling the circuit in accordance with power saving signal from computer.

### 2-3 OSD (on screen display) function

OSD (5 languages & multi location) is new and excellent man-machine interface.

Anyone is able to set up the picture as he likes through icon & four keys in front bezel.

### 2-4 Self Test function

Self testing picture comes out by pushing any key in the case of no-connection with computer or power saving operation.

This function shows if monitor is alive or not and can be used for self aging test.

### 2-5 Ergonomic design

- Low emission design to meet MPR II & TCO'92
- ESF (Electro static field) free coating on CRT

- Tilt & swivel stand is mounted

### 2-6 Multi scan with digital technology

8 bit micro computer controls the circuit operation to meet with wide range signal of  $f_H=30\sim95$  kHz and  $f_V=50\sim180$  Hz.

So VGA, SVGA, XGA(1024x768), SXGA (1280x1024) and UXGA (1600x1200) are applicable.

### 2-7 1 Factory presets, (+ 7 Reservation), 13 user memories.

- 1 standard mode is preset at the factory.
- 7 modes are reserved at the factory.
- 13 user memories are available to set the user's own timing and display information.

### 2-8 Flat Face and fine dot pitch

Flat face CRT with fine dot pitch of 0.25 mm (Horizontal:0.218mm / Vertical:0.130mm)gives a crispy and comfortable sight of the screen.

### 2-9 Superior display performance

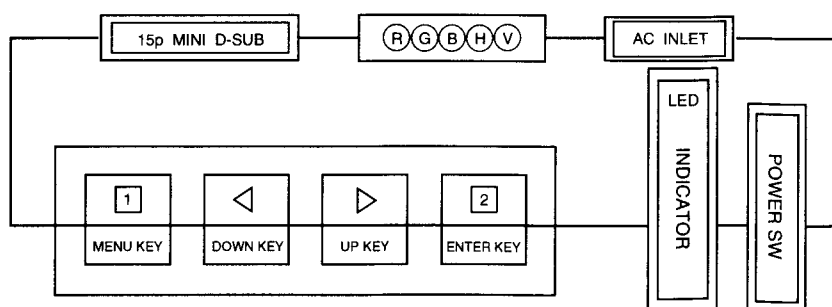
- Good focus by sophisticated gun and dynamic focus circuit
- High contrast
- Minimized distortion by digital correction circuit
- Good convergence
- Users enjoy full scan image for graphics .

### 2-10 Special function

- VESA DDC1/2B (Display Data Channel) compatible
- Rotation control circuit
- Multi color:9300k, 7500k & 6500k & 5000k are preset at the factory
- MOIRE Reduction circuit

# SPECIFICATION

## 1. DIAGRAM



1.1 POWER SW, LED, [1]-key (MENU),  $\triangleleft$ -key (DOWN),  $\triangleright$ -key (UP), and [2]-key (ENTER) are located on the front panel.

1.2 Signal cable and AC inlet are located on the back side of the cabinet.

1.3 OSD menu includes the following function.

CONTRAST	BRIGHTNESS	SIZE & POSITION
GEOMETRY	ROTATION	COLOR SELECT
RECALL	VIDEO INPUT LEVEL	H.MOIRE
V.MOIRE	LANGUAGE	OSD POSITION
DEGAUSS	SIGNAL	

※) CONTRAST can be directly controlled with  $\triangleleft/\triangleright$ -key.

※) With sync signal, OSD menu appears by pushing [1]-key and [2]-key. Without sync signal, self test menu appears by pushing any key.

※) Size & Posi.....H.POSITION, H.SIZE, V.POSITION, V.SIZE

※) GEOMETRY.....V.PINCUSHION/ BALANCE, TRAPEZOID, PARALLELOGRAM

※) Video clamp pulse phase can be changed by simultaneously operation for [1] and [2] key .



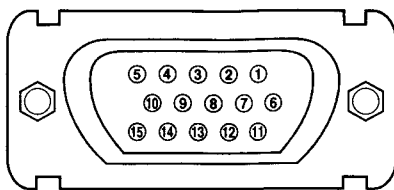
## 2. MECHANICAL SPECIFICATIONS

..... refer to the attached drawing

- 2.1 Dimension    Height : 487 mm (19.2")    (typ.)  
                          Width : 505 mm (19.9")    (typ.)  
                          Depth : 519 mm (20.4")    (typ.)
- 2.2 Net Weight                : 27.5 Kg (60.5lbs) (typ.)
- 2.3 Maximum Viewable Phosphor Display Area:  
    : 508mm (20.0")    (typ.)

## 3. CONNECTORS

- 3.1 Signal connector:  
                          15P Mini D-Sub 15P and BNC (R. G. B. H. V)
- 3.2 AC inlet:    CEE 22 typed connector  
                          <15P Mini D-Sub 15P PIN assignment>



- |                    |                |                  |
|--------------------|----------------|------------------|
| 1 ... RED          | 6 ... GROUND   | 11 ... GROUND    |
| 2 ... GREEN        | 7 ... GROUND   | 12 ... SDA (DDC) |
| 3 ... BLUE         | 8 ... GROUND   | 13 ... H. SYNC.  |
| 4 ... GROUND       | 9 ... - (OPEN) | 14 ... V. SYNC.  |
| 5 ... GROUND (DDC) | 10 ... GROUND  | 15 ... SCL (DDC) |

## 4. CRT SPECIFICATIONS

Part No.	M51KYY540X
Type	21", 90°, 29ø.in-line gun (Viewable20.0" ),
Dot Pitch	Horizontal:0.218mm/Vartical:0.130mm
Phosphor	R, G, B short persistence(Hi-Eu RED)
	Red x=0.635 typ, y=0.333 typ Green x=0.280 typ, y=0.595 typ Blue x=0.152 typ, y=0.063 typ
Bulb	DARK TINT
Face coating	NEW AGRAS COAT
Total Transmission	39.5%

## 5. ELECTRICAL SPECIFICATIONS

- 5.1 Standard conditions ... Except special items

Display image	Green, full "H" characters with a border line. (7 x 9 dots) Video signal : 100% duty Display area : 392 mm x 294 mm
Video signal level	0.7 V pp
Contrast, Brightness	Contrast : Max., Brightness : detent point
Ambient Temperature	20±5°C (68 ± 9°F)
Input Voltage	AC 120 V, 60 Hz or AC 220 V, 50 Hz
Terrestrial magnetism	Vertical field : northern hemisphere field 40μT Horizontal field : no field
Viewing direction	Parallel to the CRT axis
Measurements	After an initial warming up time of more than 30 minutes.
Ambient light	200±50 IX
Display mode	1600 x 1200 (93.75 kHz, 75.00 Hz)

## 5.2 POWER

- 5.2.1 Power supply ... Commercial power source

Input voltage	AC 90 - 132 V, AC 198 - 264 V
Power frequency	50 Hz ± 3 Hz, 60 Hz ± 3 Hz
Input current	2.7 A Max. (100 V)
Inrush current (at 20° C)	40 A op                note:Cold Start
Power consumption	145 W Typ.160 W max.( AC 100V)

## 5.2.2 Power Management for Power Saving ...

Power saving system is designed based upon VESA DPMS standard (Version : 1.0)

- 1) Power consumption and recovery time.

*1 APM State	SIGNALS			MONITOR POWER CONSUMPTION	RECOVERY TIME TO ON STATE	INDICATOR
	H. Sync	V. Sync	VIDEO			
ON	*3 NOR- MAL	*3 NOR- MAL	*2 ACTIVE	*4 100%	—	Green
STAND- BY	No Sync or *5 < 10 Hz	> 40 Hz	BLANK	< 15 W	< 4 sec.	Yellow
SUS- PEND	>10 kHz	No Sync or *5 < 10 Hz	BLANK	< 15 W	< 4 sec.	Yellow
OFF	No Sync or *5 < 10 Hz	No Sync or *5 < 10 Hz	BLANK	< 4 W	< 20sec	Yellow

\*\* The transition time from ON state to each APM states is 5 seconds minimum.

\*1 : APM : Advanced Power Management.

\*2 : Measurement Condition of power consumption for ON state :

DISPLAY IMAGE : WHITE full "H" characters (7 × 9 dots).

\*3 : NORMAL : See "5.4 ACCEPTABLE TIMING".

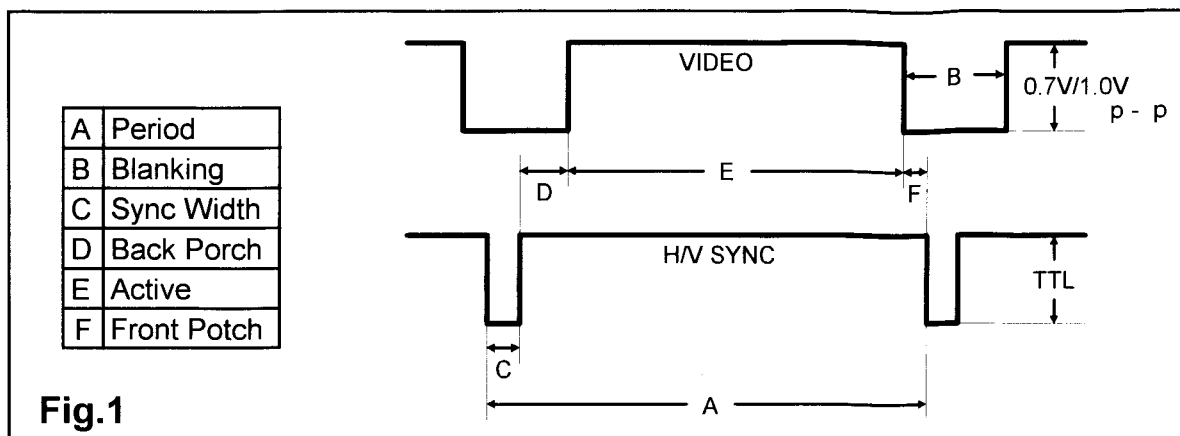
\*4 : Power Consumption is measured at AC 100-240V. (Note:3w Typ. at AC 230V/50Hz)

\*5 : Power saving operation is done at least less than specified value in the list.

## 5.3 Standard timing (Standard mode)

- Following 1 mode is preset in the memory as standard timing at the factory and 7 modes are reserved.
- Fig-1 shows a definition of timing and signal level.
- Electrical performance is specified This SPECIFICATION is specified at STD (1600 x 1200) mode unless otherwise mentioned.

# TIMING CHART



	PRESET	RESERVATION	RESERVATION
	MODE - 1	MODE - 2	MODE - 3
	1600 × 1200 (75)	640 × 480 (60)	800 × 600 (75)
DOT CLOCK	202.5000 MHz	25.1750 MHz	49.5000 MHz
f H	93.7500 kHz	31.4688 kHz	46.8750 kHz
A - PERIOD	10.667 μs ( 2,160 dots )	31.778 μs ( 800 dots )	21.333 μs ( 1,056 dots )
B - BLANKING TIME	2.765 μs ( 560 dots )	6.356 μs ( 160 dots )	5.172 μs ( 256 dots )
C - SYNC WIDTH	0.948 μs ( 192 dots )	3.813 μs ( 96 dots )	1.616 μs ( 80 dots )
D - BACK PORCH	1.501 μs ( 304 dots )	1.946 μs ( 49 dots )	3.232 μs ( 160 dots )
E - ACTIVE TIME	7.901 μs ( 1,600 dots )	25.422 μs ( 640 dots )	16.162 μs ( 800 dots )
F - FRONT PORCH	0.316 μs ( 64 dots )	0.596 μs ( 15 dots )	0.323 μs ( 16 dots )
f V	75.0000 Hz	59.9405 Hz	75.0000 Hz
A - PERIOD	13.333 ms ( 1,250 lines )	16.683 ms ( 525 lines )	13.333 ms ( 625 lines )
B - BLANKING TIME	0.533 ms ( 50 lines )	1.430 ms ( 45 lines )	0.533 ms ( 25 lines )
C - SYNC WIDTH	0.032 ms ( 3 lines )	0.064 ms ( 2 lines )	0.064 ms ( 3 lines )
D - BACK PORCH	0.491 ms ( 46 lines )	1.176 ms ( 37 lines )	0.448 ms ( 21 lines )
E - ACTIVE TIME	12.800 ms ( 1,200 lines )	15.253 ms ( 480 lines )	12.800 ms ( 600 lines )
F - FRONT PORCH	0.011 ms ( 1 lines )	0.191 ms ( 6 lines )	0.021 ms ( 1 lines )
SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Positive / Positive

	RESERVATION	RESERVATION	RESERVATION
	MODE - 4	MODE - 5	MODE - 6
	1024 × 768 (75)	MAC 1152 × 870 (75)	1280 × 1024 (60)
DOT CLOCK	78.7500 MHz	100.0000 MHz	108.5000 MHz
f H	60.0229 kHz	68.6813 kHz	63.9741 kHz
A - PERIOD	16.660 μs ( 1,312 dots )	14.560 μs ( 1,456 dots )	15.631 μs ( 1,696 dots )
B - BLANKING TIME	3.657 μs ( 288 dots )	3.040 μs ( 304 dots )	3.834 μs ( 416 dots )
C - SYNC WIDTH	1.219 μs ( 96 dots )	1.280 μs ( 128 dots )	1.180 μs ( 128 dots )
D - BACK PORCH	2.235 μs ( 176 dots )	1.440 μs ( 144 dots )	2.065 μs ( 224 dots )
E - ACTIVE TIME	13.003 μs ( 1,024 dots )	11.520 μs ( 1,152 dots )	11.797 μs ( 1,280 dots )
F - FRONT PORCH	0.203 μs ( 16 dots )	0.320 μs ( 32 dots )	0.590 μs ( 64 dots )
f V	75.0286 Hz	75.0616 Hz	60.0132 Hz
A - PERIOD	13.328 ms ( 800 lines )	13.322 ms ( 915 lines )	16.663 ms ( 1,066 lines )
B - BLANKING TIME	0.533 ms ( 32 lines )	0.655 ms ( 45 lines )	0.657 ms ( 42 lines )
C - SYNC WIDTH	0.050 ms ( 3 lines )	0.044 ms ( 3 lines )	0.047 ms ( 3 lines )
D - BACK PORCH	0.466 ms ( 28 lines )	0.568 ms ( 39 lines )	0.594 ms ( 38 lines )
E - ACTIVE TIME	12.795 ms ( 768 lines )	12.667 ms ( 870 lines )	16.006 ms ( 1,024 lines )
F - FRONT PORCH	0.017 ms ( 1 lines )	0.044 ms ( 3 lines )	0.016 ms ( 1 lines )
SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Positive / Positive

		RESERVATION	RESERVATION
		MODE - 7	MODE - 8
		1280 × 1024 (75)	1600 × 1200 (70)
DOT CLOCK		135.0000 MHz	189.0000 MHz
H	f H	79.9763 kHz	87.5000 kHz
	A - PERIOD	12.504 μs ( 1,688 dots )	11.429 μs ( 2,160 dots )
	B - BLANKING TIME	3.022 μs ( 408 dots )	2.963 μs ( 560 dots )
	C - SYNC WIDTH	1.067 μs ( 144 dots )	1.016 μs ( 192 dots )
	D - BACK PORCH	1.837 μs ( 248 dots )	1.608 μs ( 304 dots )
	E - ACTIVE TIME	9.481 μs ( 1,280 dots )	8.466 μs ( 1,600 dots )
	F - FRONT PORCH	0.119 μs ( 16 dots )	0.339 μs ( 64 dots )
V	f V	75.0247 Hz	70.0000 Hz
	A - PERIOD	13.329 ms ( 1,066 lines )	14.286 ms ( 1,250 lines )
	B - BLANKING TIME	0.525 ms ( 42 lines )	0.571 ms ( 50 lines )
	C - SYNC WIDTH	0.038 ms ( 3 lines )	0.034 ms ( 3 lines )
	D - BACK PORCH	0.475 ms ( 38 lines )	0.526 ms ( 46 lines )
	E - ACTIVE TIME	12.804 ms ( 1,024 lines )	13.714 ms ( 1,200 lines )
	F - FRONT PORCH	0.013 ms ( 1 lines )	0.011 ms ( 1 lines )
SYNC POLARITY(H/V)		Positive / Positive	Positive / Positive

		ADJUSTMENT	ADJUSTMENT	ADJUSTMENT
		HV10S - 1	HV10S - 2	HV10S - 3
DOT CLOCK		22.5900 MHz	91.6240 MHz	160.6320 MHz
H	f H	29.1108 KHz	52.1777 KHz	75.2022 KHz
	A - PERIOD	34.351 μs ( 776 dots )	19.165 μs ( 1,756 dots )	13.297 μs ( 2,136 dots )
	B - BLANKING TIME	6.906 μs ( 156 dots )	4.235 μs ( 388 dots )	3.187 μs ( 512 dots )
	C - SYNC WIDTH	3.320 μs ( 75 dots )	1.746 μs ( 160 dots )	1.145 μs ( 184 dots )
	D - BACK PORCH	2.258 μs ( 51 dots )	1.768 μs ( 162 dots )	1.544 μs ( 248 dots )
	E - ACTIVE TIME	27.446 μs ( 620 dots )	14.931 μs ( 1,368 dots )	10.110 μs ( 1,624 dots )
	F - FRONT PORCH	1.328 μs ( 30 dots )	0.720 μs ( 66 dots )	0.498 μs ( 80 dots )
V	f V	47.4891 Hz	92.3499 Hz	137.2304 Hz
	A - PERIOD	21.057 ms ( 613 lines )	10.828 ms ( 565 lines )	7.287 ms ( 548 lines )
	B - BLANKING TIME	0.927 ms ( 27 lines )	0.556 ms ( 29 lines )	0.426 ms ( 32 lines )
	C - SYNC WIDTH	0.103 ms ( 3 lines )	0.057 ms ( 3 lines )	0.040 ms ( 3 lines )
	D - BACK PORCH	0.721 ms ( 21 lines )	0.479 ms ( 25 lines )	0.372 ms ( 28 lines )
	E - ACTIVE TIME	20.130 ms ( 586 lines )	10.273 ms ( 536 lines )	6.861 ms ( 516 lines )
	F - FRONT PORCH	0.103 ms ( 3 lines )	0.019 ms ( 1 lines )	0.013 ms ( 1 lines )
SYNC POLARITY(H/V)		Negative / Negative	Negative / Negative	Negative / Negative

		ADJUSTMENT
		HV10S - 4
DOT CLOCK		230.1100 MHz
H	f H	96.5227 KHz
	A - PERIOD	10.360 μs ( 2,384 dots )
	B - BLANKING TIME	2.694 μs ( 620 dots )
	C - SYNC WIDTH	0.834 μs ( 192 dots )
	D - BACK PORCH	1.495 μs ( 344 dots )
	E - ACTIVE TIME	7.666 μs ( 1,764 dots )
	F - FRONT PORCH	0.365 μs ( 84 dots )
V	f V	182.1182 Hz
	A - PERIOD	5.491 ms ( 530 lines )
	B - BLANKING TIME	0.363 ms ( 35 lines )
	C - SYNC WIDTH	0.031 ms ( 3 lines )
	D - BACK PORCH	0.321 ms ( 31 lines )
	E - ACTIVE TIME	5.128 ms ( 495 lines )
	F - FRONT PORCH	0.010 ms ( 1 lines )
SYNC POLARITY(H/V)		Negative / Negative

## 5.4 Acceptable timing

- If your timing is within following specification, this CRT display can automatically function with a certain size and position.

Horizontal:    Sync frequency: 30.0 ~ 95.0 kHz  
                  Blanking Time:  $\geq 2.7 \mu\text{s}$   
                  Back Porch:     $\geq 1.25 \mu\text{s}$   
                  Front Porch:    $\leq$  Back Porch  
                  Sync Width     : 0.948 ~ 4.0  $\mu\text{s}$  ( $f_H < 50\text{kHz}$ )  
                                      0.948 ~ 2.5  $\mu\text{s}$  ( $f_H > 50\text{kHz}$ )

Vertical:        Sync frequency: 50.0 ~ 180.0 Hz  
                  Blanking Time:  $\geq 0.5 \text{ ms}$   
                  Back Porch:     $\geq 0.4 \text{ ms}$   
                  Sync Width:     $\geq 0.032 \text{ ms}$

- Several items like size, position and distortion can be adjusted through OSD menu, and if you want to keep it, please push the key **[1]** for memory, or keep the key untouched for about 20 seconds, it is automatically memorized.

NOTE : In case of RECALL, the key is untouched for about 30 seconds, RECALL function will be cancelled.

Please note, however, that there is the case you can not get the size and/or position you want, (for example, in case Display video Time is too short, you can't get bigger size of the image.)

- The CRT adopted in this CRT display is designed to minimize the moire phenomenon at suitable size for typical display modes. However, there might be a display format among many formats, in which the moire phenomenon appears on this display.

## 5.5 Signal level and input impedance

### 5.5.1 Video Signal level

- This CRT display is adjusted at the factory using 0.7Vpp Video Signal. Black level is 0 V.
- This CRT display is compatible with 1.0Vpp Video signal by using Video input level selection.

### 5.5.2 Sync Signal level

- H/V Separate, H/V Mixed : TTL level
- Sync on Green : 0.3 V p-p  $\pm 0.015\text{V}$

### 5.5.3 Input impedance

- Video input: 75  $\Omega$
- Sync input:  $\geq 1 \text{ k}\Omega$

## 5.6 Display performance

### 5.6.1 Display area

#### 1) PRESET TIMING

MODE 1, 1600 × 1200 @75Hz  
WIDTH : 392 mm  $\pm 5 \text{ mm}$   
HEIGHT : 294 mm  $\pm 5 \text{ mm}$

#### 2) RESERVATION TIMING

MODE 2, 640 × 480 @60Hz  
WIDTH : 392 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 3, 800 × 600 @75Hz  
WIDTH : 392 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 4, 1024 × 768 @75Hz  
WIDTH : 392 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 5, 1152 × 870 @75Hz  
WIDTH : 392 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 6, 1280 × 1024 @60Hz  
WIDTH : 368 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 7, 1280 × 1024 @75Hz  
WIDTH : 368 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

MODE 8, 1600 × 1200 @70Hz  
WIDTH : 392 mm  $\pm 7 \text{ mm}$   
HEIGHT : 294 mm  $\pm 7 \text{ mm}$

#### 3) FULL SCAN

WIDTH : 406 mm  
HEIGHT : 304 mm

### 5.6.2 Centering

#### 1) PRESET TIMING (MODE1)

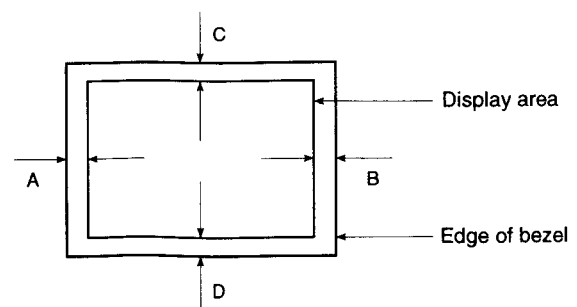
IA - BI  $\leq 4 \text{ mm}$

IC - DI  $\leq 4 \text{ mm}$

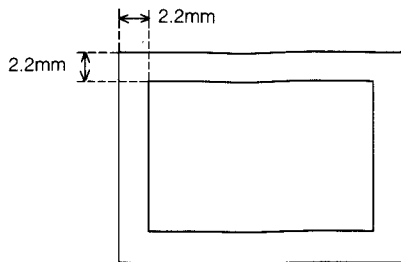
#### 2) RESERVATION TIMING (MODE2~8)

IA - BI  $\leq 7 \text{ mm}$

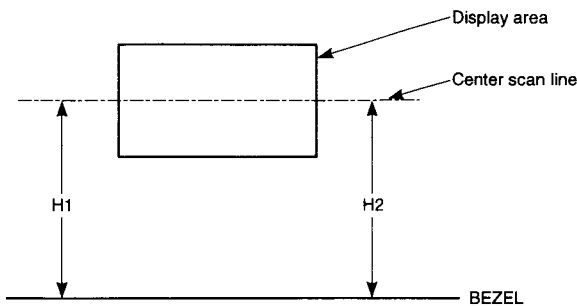
IC - DI  $\leq 7 \text{ mm}$



### 5.6.3 Distortion Inside 2.2 mm Frame



### 5.6.4 Rotation $|H1 - H2| \leq 2.5 \text{ mm}$

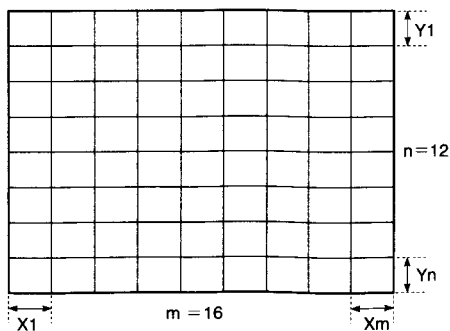


### 5.6.5 Linearity Horizontal linearity

$$= \frac{X_{\text{max.}} - X_{\text{min.}}}{X_{\text{max.}} + X_{\text{min.}}} \times 100\% \leq 7\%$$

#### Vertical linearity

$$= \frac{Y_{\text{max.}} - Y_{\text{min.}}}{Y_{\text{max.}} + Y_{\text{min.}}} \times 100\% \leq 6\%$$



### <Conditions>

Display image ----- crosshatch pattern

Maximum and minimum values should not be adjacent to each other.

X max. is maximum value among  $X1 \sim Xm$

X min. is minimum value among  $X1 \sim Xm$

Y max. is maximum value among  $Y1 \sim Yn$

Y min. is minimum value among  $Y1 \sim Yn$

### 5.7 General performance

#### 5.7.1 Maximum Pixel Clock

202.5 MHz (Typ.)

#### 5.7.2 Maximum luminance

Value	95 cd/m <sup>2</sup> (Typ.) for 5% white field at the center of the display area. 85 cd/m <sup>2</sup> (Typ.) for 100% white field at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Max. (Contrast : Max.) (Brightness : CENTER point)

#### 5.7.3 Minimum luminance

Value	$\leq 17 \text{ cd/m}^2$ at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Min. (Contrast : Min.) (Brightness : CENTER point)

#### 5.7.4 Brightness variation

Value	75 % (Min.) Variation = C/A X 100
Conditions	Display image : White full flat field Luminance : MAX (Contrast : MAX) (Brightness : Center point) A ; Luminance at center position C ; Luminance at position of lowest brightness

#### 5.7.5 Display area regulation

	Display area variation	Range of variation
Due to Luminance	within 1.0 %	17~95 cd/m <sup>2</sup> (white flat field)
Due to Power Supply	within 0.5 %	AC : 90 - 132 V or 198 - 264 V
Due to Temperature	within 1.5 %	20° C ± 20° C

#### 5.7.6 Color Point

< Conditions >

Display image : White flat field at the center of the display area.

Luminance : Brightness Center point.

Contrast	max	min
Value	9300 K + 8 MPCD $x = 0.283 \pm 0.020$ $y = 0.298 \pm 0.020$	9300 K + 8 MPCD $x = 0.283 \pm 0.020$ $y = 0.298 \pm 0.020$

< Conditions >

Display image : 5% White flat field at the center of the display area.

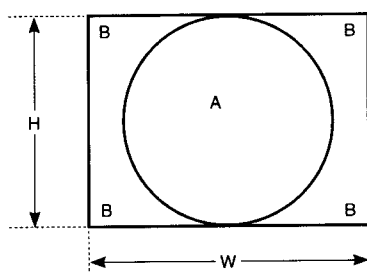
Luminance : Brightness Center point ,  
Contrast max

Contrast	7500K	6500K	5000K
Value	$x = 0.300(\text{Typ.})$ $y = 0.315(\text{Typ.})$	$x = 0.313(\text{Typ.})$ $y = 0.329(\text{Typ.})$	$x = 0.346(\text{Typ.})$ $y = 0.359(\text{Typ.})$

#### 5.7.7 Misconvergence

Center area of display (A) : 0.3 mm (Max.)

Corner area of display (B) : 0.4 mm (Max.)



<Conditions>

Display image : Crosshatch pattern mixed with R, G and B colors.

Convergence gauge : KLEIN CM7AG or equivalent.

Display area : W x H 392 x 294 mm

#### 5.7.8 White Uniformity

$x_a - x_c \leq \pm 0.015$

$x_a$  : x coordinate at the CRT center

$x_c$  : x coordinate at any other point

$y_a - y_c \leq \pm 0.015$

$y_a$  : y coordinate at the CRT center

$y_c$  : y coordinate at any other point

<Conditions>

Display image : White flat field

Luminance : 95 cd/m<sup>2</sup> at the center of display area

Display area : 392 x 294 mm

#### 5.7.9 Purity

Conspicuous mislanding shall not be visible within display area at a distance of 60cm from CRT surface.

<Conditions>

Display image : Red/Green/Blue flat field

Luminance : Contrast max,  
Brightness CENTER

Display area : 392 x 294 mm

#### 5.7.10 Jitters

Invisible at a distance of 60 cm from CRT surface.

## 6. ENVIRONMENTS

### 6.1 Ambient temperature, humidity and altitude

	Operating	Storage and shipment
Temperature	0 ~ 40° C (32 ~ 104° F)	-20 ~ +60° C (-4 ~ 140° F)
Humidity	5 ~ 90 % *	5 ~ 90 % *
Altitude	3,000 m (Max.) (10,000 ft)	12,000 m (Max.) (40,000 ft)

\* Non-condensation

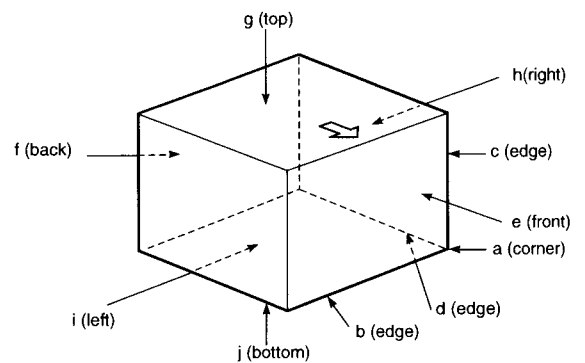
## 6.2 Vibration and shock

### 6.2.1 Vibration

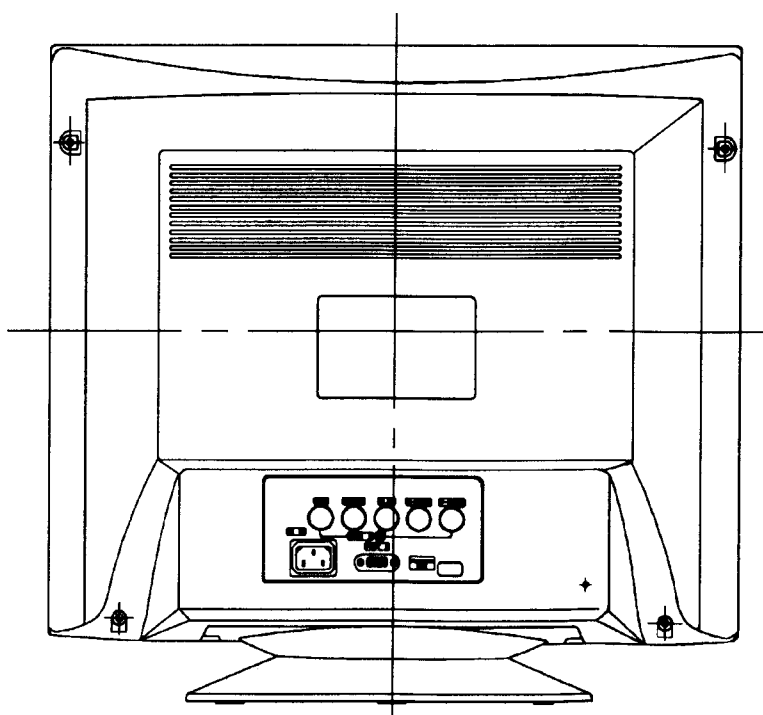
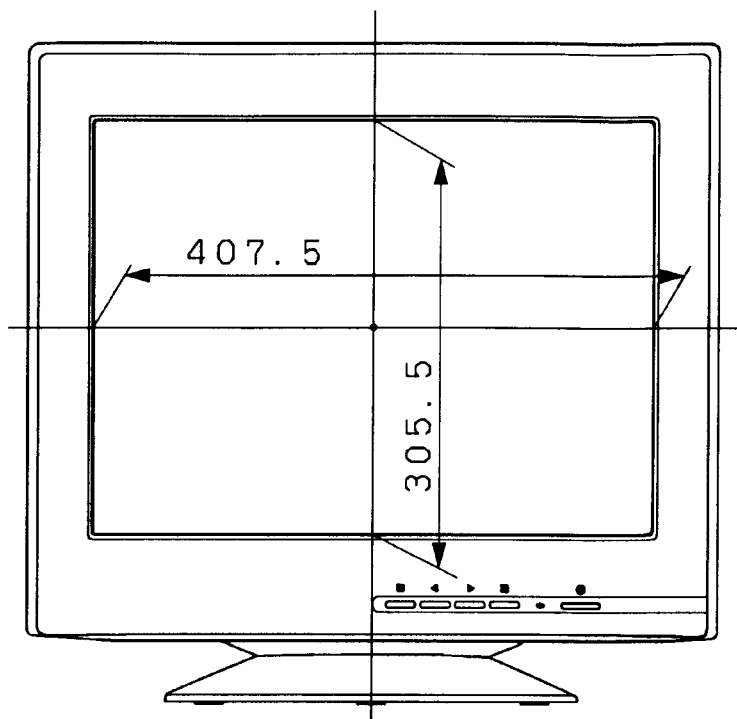
	Order of tests	Direction of vibration		Acceleration		Frequency	Sweep	Test time		
				Non-operation	Storage and shipment					
Unpacked	1	Vertical	Up to down	2.9 m/s <sup>2</sup> (0.3 G)		5 - 55 Hz	120 s	30 min.		
	2	Horizontal	Front to back					15 min.		
	3		Right to left							
Packed	1	Vertical	Up to down		10m/s <sup>2</sup> (1.0 G)	5 - 50 Hz	810s (LogswEEP)	40 min.		
	2	Horizontal	Front to back		5m/s <sup>2</sup> (0.5 G)			20 min.		
	3		Right to left							

### 6.2.2 Shock (Drop test)

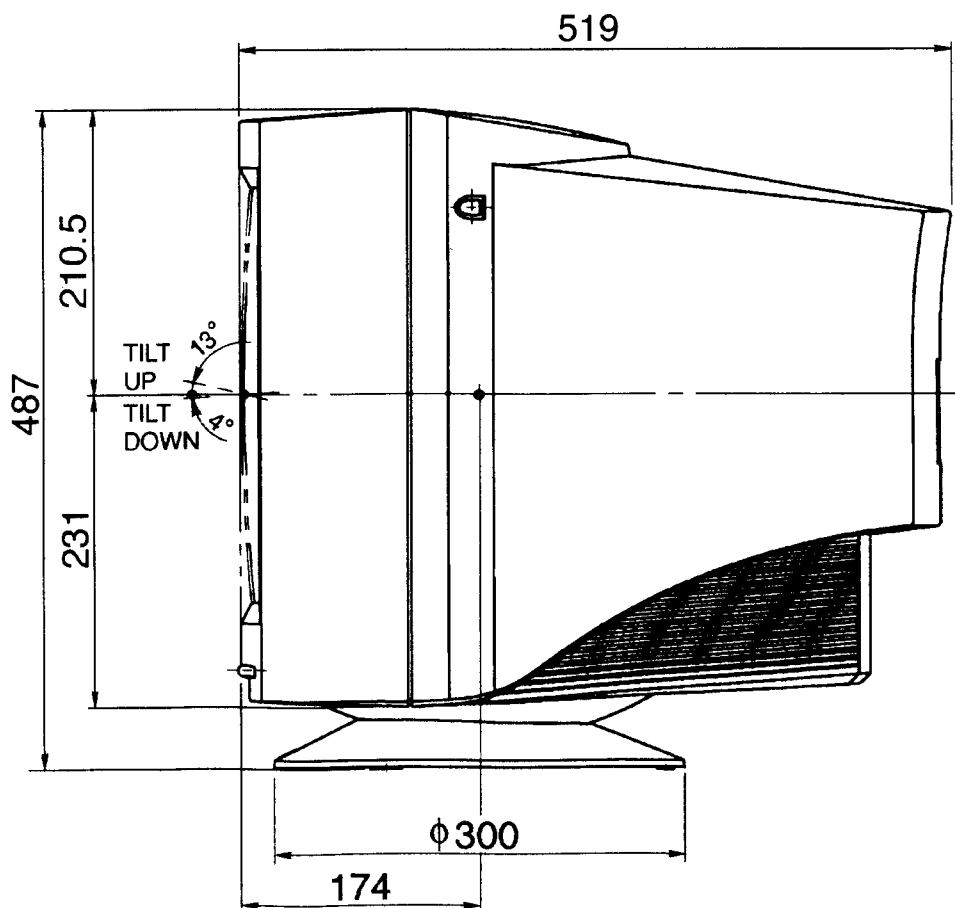
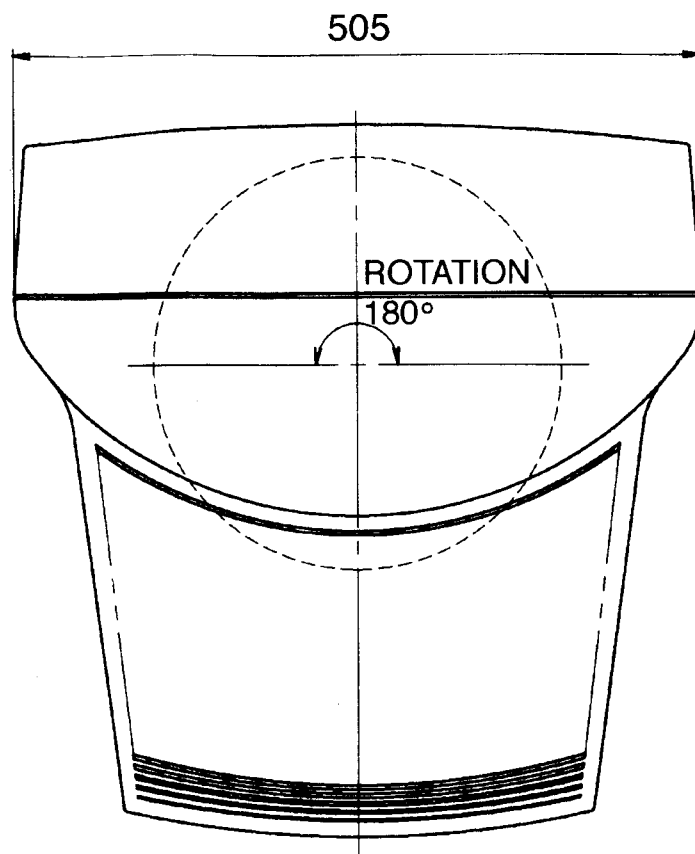
Unpacked	20 G One time for each face (6 faces) (non-operation)			
Packed	Order of drop	Face to drop is to face the floor. (See the figure)	Height	Number of drop
	1	A, B, C, D, E, F, G, H, I	31 cm	1 time for each
	2	J	50 cm	



## DIMENSIONS





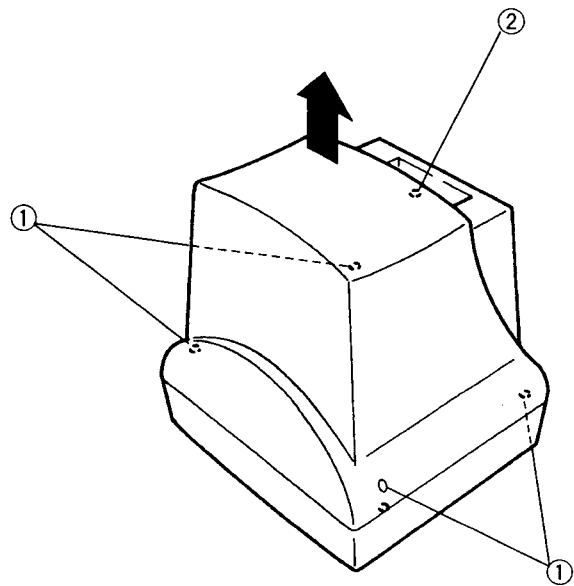
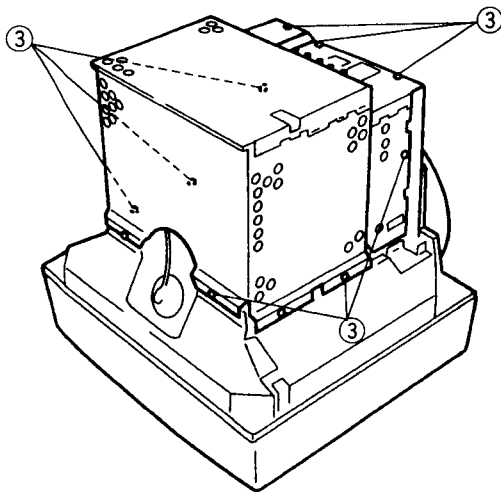


# DISASSEMBLY INSTRUCTIONS

## 1. Rear cover removal

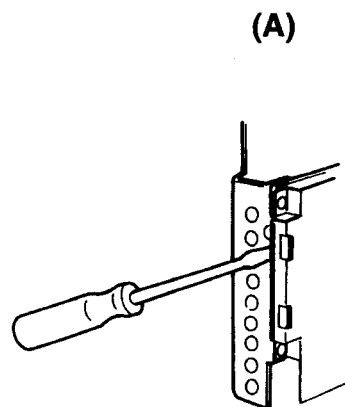
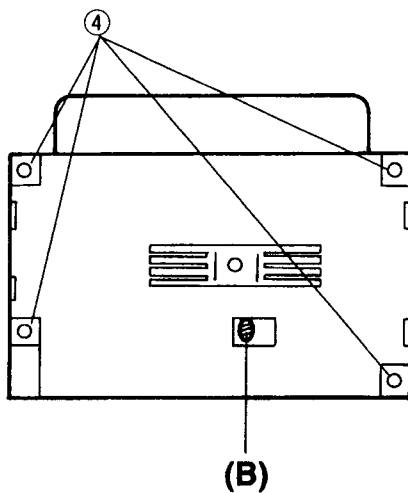
*Note: Spread a mat underneath to avoid damaging the CRT surface.*

- 1) Remove four large screws ① and small screw ② from the rear cover.
- 2) Remove the cover.
- 3) Remove nine screws ③ from the shield case.
- 4) Remove the shield case.

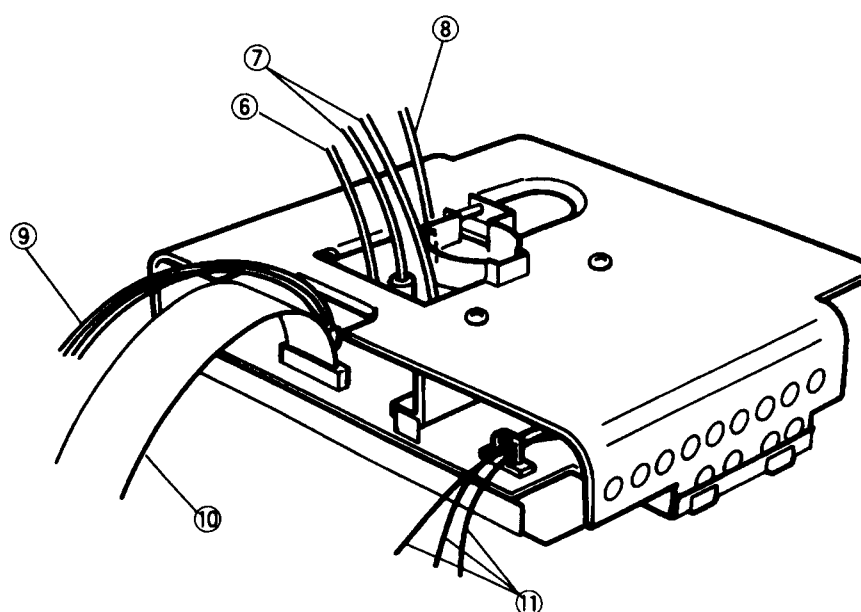
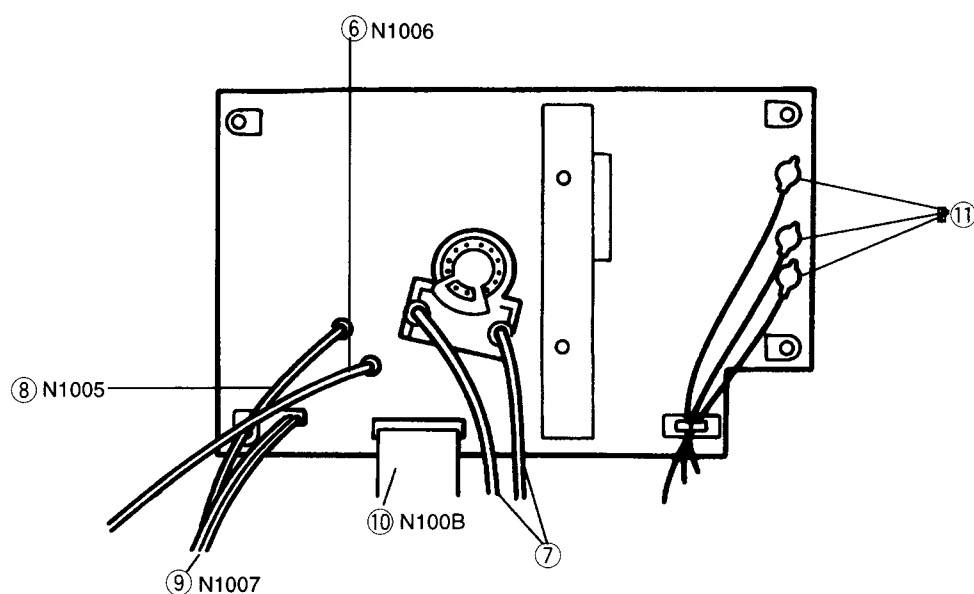
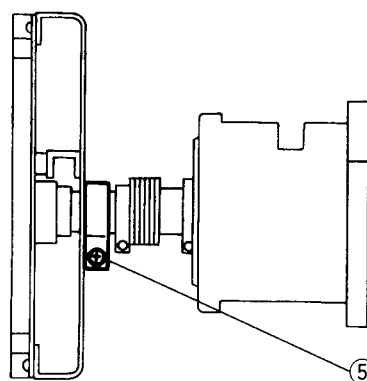


## 2. Video PCB removal

- 1) Remove four screws ④ securing the shield cover.
- 2) Desolder (B) and Remove the shield cover (A).

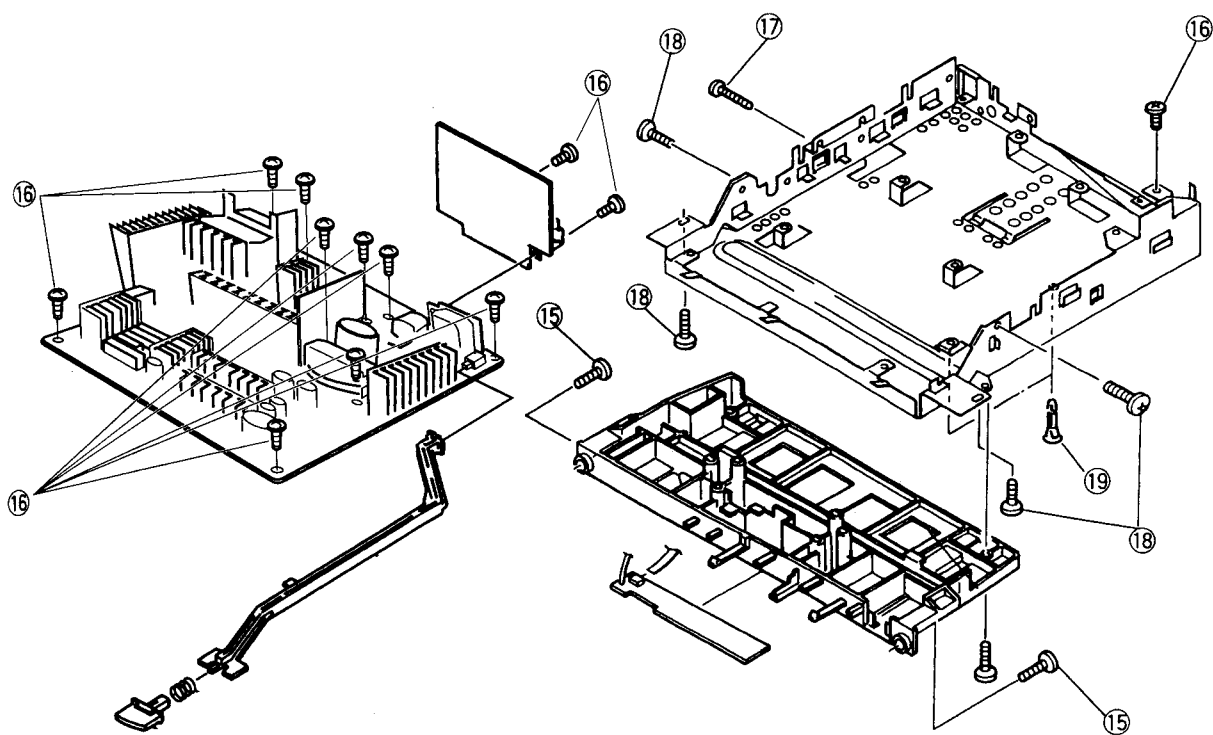
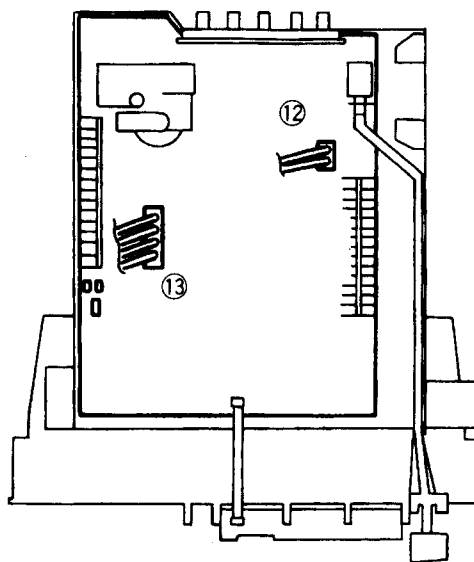
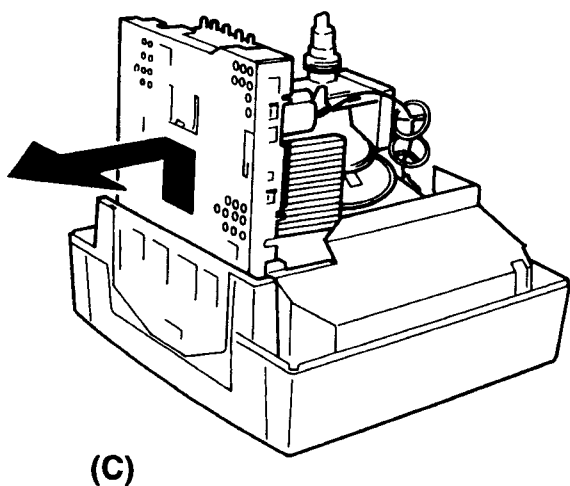


- 3) Loosen the screw ⑤ securing the CRT neck and the shield case.
- 4) Remove the PCB block from the CRT.
- 5) Remove the N1006 connector ⑥.
- 6) Remove two focus leads ⑦.
- 7) Remove ground connector ⑧ (N1005) connected to the PCB.
- 8) Remove N1007 connector ⑨.
- 9) Remove N100B connector ⑩.
- 10) Remove RGB connector ⑪.
- 11) Remove the PCB from the shield case.



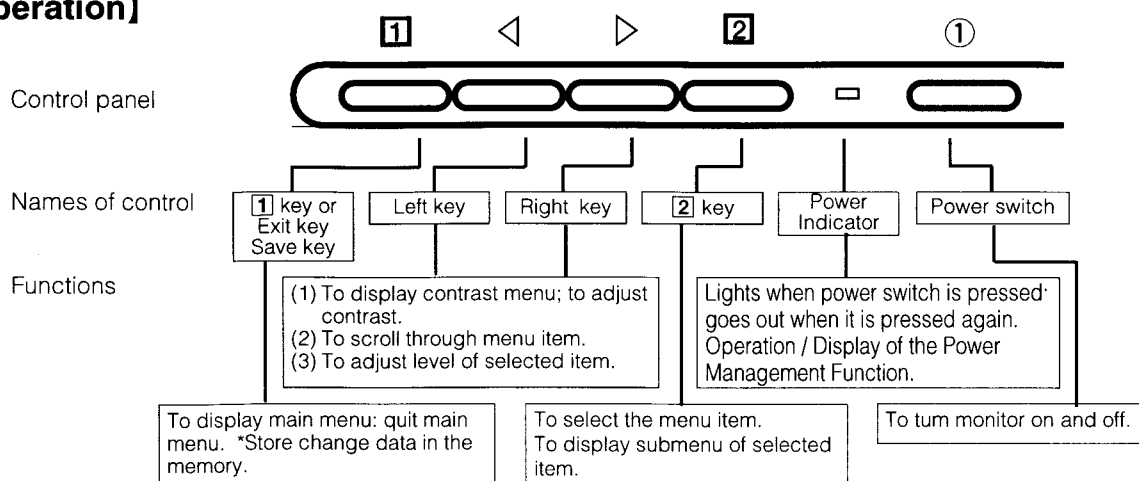
### 3. Main PCB Removal

- 1) Remove the connector ⑫ (N901) of the degauss coil.
- 2) Remove the DY connector ⑬.
- 3) Remove the anode cap.
- 4) Move the CRT face down and remove two screws ⑮ securing the bottom fitting metal.
- 5) Remove the fitting metal and the PCB from the cabinet. (C)
- 6) Remove thirteen screws ⑯ securing the fitting metal and PCB.
- 7) Remove screws ⑰ securing the fitting metal and PCB.
- 8) Remove four screws ⑱ securing the fitting metal and PCB.
- 9) Remove two clamps ⑲ the fitting metal and PCB.
- 10) Remove the PCB with the figure referenced.



# CONTROL LOCATION

## [Basic operation]

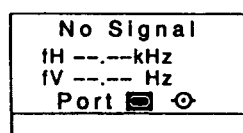


- For a detailed description of the functions of the **1** key, left key, right key, and **2** key.
- \* Since contrast is the most commonly adjusted parameter, we have provided direct access to this menu item.

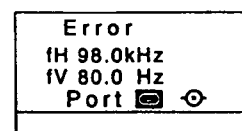
## Adjustments

### Self-Test menu(No Signal screen)

This display indicates that the monitor is operating normally. When one of the following conditions occurs, press one of the 4 operation keys to call the appropriate display.



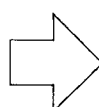
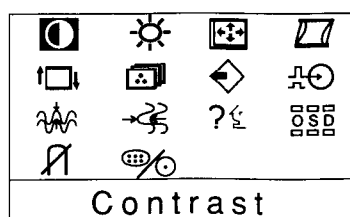
No signal ( The computer is not connected or the mains power to the computer is disconnected )



The horizontal sync. signal are outside of the permitted range ( the value of the horizontal sync. signal will be displayed in red and the value of the vertical sync. signal will be displayed in white )

## Select menu

The adjusted items are represented by icons. When the **1** key is pressed, the menu screen appears. Use the **Left** or **Right** keys to move the cursor to the item to be adjusted, then press the **2** key to call the adjustment menu.



[Icon]	Contrast Adjustment
[Icon]	Brightness Adjustment
[Icon]	Size & Position adjustment
[Icon]	H.Position
[Icon]	H.Size
[Icon]	V.Position
[Icon]	V.Size
[Icon]	Geometry adjustment
[Icon]	V.pincushion
[Icon]	Side Pin. Bal.
[Icon]	Trapezoid
[Icon]	Parallelogram
[Icon]	Rotation
[Icon]	Color temp
[Icon]	Recall
[Icon]	Video input level
[Icon]	H. Moire reduction
[Icon]	V. Moire reduction
[Icon]	Language
[Icon]	OSD screen position
[Icon]	Degauss
[Icon]	Input select

---

## CAUTION FOR ADJUSTMENT AND REPAIR

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1. Degaussing is inevitably required at purity adjustment or convergence adjustment.
2. If you check or adjust electrical specification or function, more than 20 minutes burn-in is required.
3. Reforming of the lead wire is required after your repair work.
4. Prior to starting work, be sure to check that the input signal is at the specified timing and that the polarity is as specified in all modes.
5. Brightness control: After mounting the rear cover, brightness tends to decrease about 5 cd/m<sup>2</sup> on a flat white field and about 1 cd/m<sup>2</sup> on a white raster field. This should be taken into consideration.
6. Brightness stabilizing time: It takes about 20 to 50 seconds for the brightness to stabilize after turning the power off for 5 seconds (AC). Therefore, care should be taken to this.
7. Aging should be made in white raster of 30 ~ 50 cd/m<sup>2</sup> and raster size, 402 x 301 mm before adjusting the ITC.
8. Set the CONTRAST to MAX and BRIGHTNESS to CENTER using the O.S.D.

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## CAUTION FOR SERVICING

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When servicing or replacing the CRT, high voltage sometimes remains on the anode. So, completely discharge high voltage before servicing or replacing the CRT so as to prevent a shock to the service person.

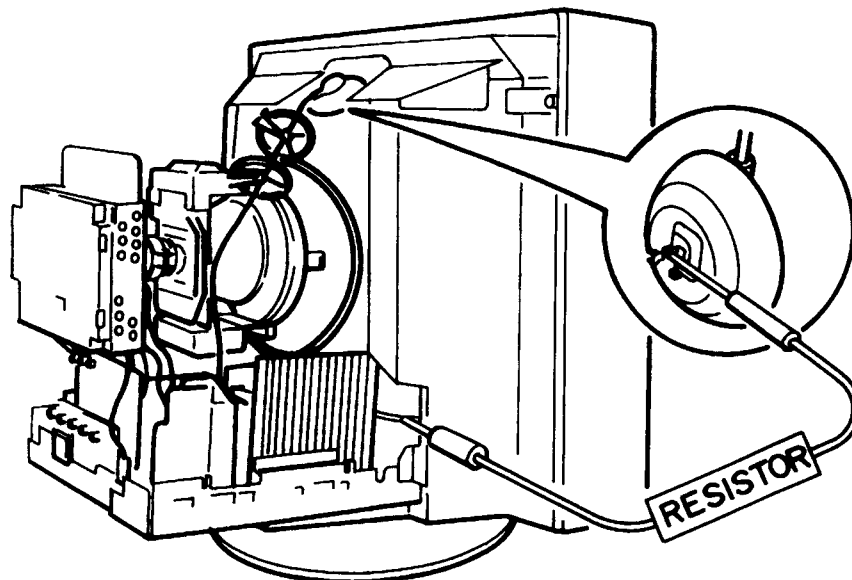
### CRT Anode Discharge

1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of CRT, especially when checked right after power turn-off.
2. Ground one end of a jumper wire which has a resistor (30 kV < resisting pressure 100 MΩ) and connect the other point to the CRT anode.

**Note:** Grounding must be done first.

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may be hit by an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.



# ADJUSTMENT AND CHECK PROCEDURE

## INTRODUCTION

- This monitor is controlled by a microcomputer. With the exception of purity/convergence/focus all is digitally adjusted. Therefore a computer, the dedicated control software, the dedicated interface, a 9~12 V power supply, and a signal generator are required servicing.

## TOOLS REQUIRED

- Computer**  
The control software is IBM PC compatible only. Therefore, it is not compatible with any other operating systems. For further information please contact our sales office.
- Control Software**  
The HV10S chassis can only use adjustment program disk" for this model. No other program can access the EEPROM on the monitor. For further information please contact our sales office.

- Interface**

The interface is dedicated to work only with the control software and the HV chassis. There are no substitutes for this interface. For further information please contact our sales office.

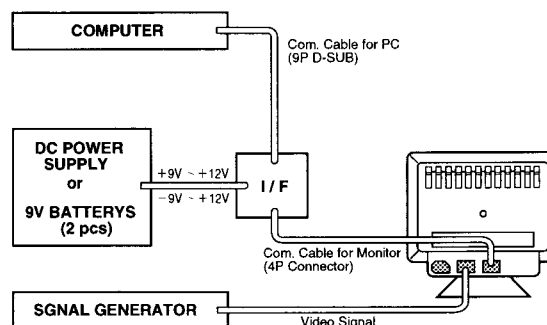
- Power Supply**

A DC 9~12 V (+9~12 V/-9~12 V) power supply is required for operating the interface.

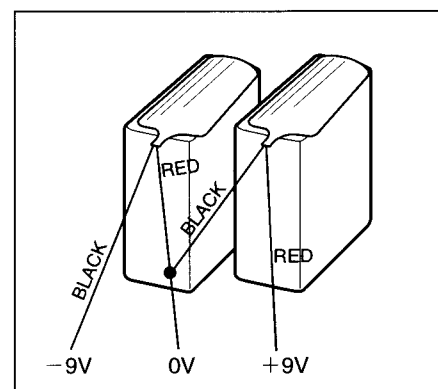
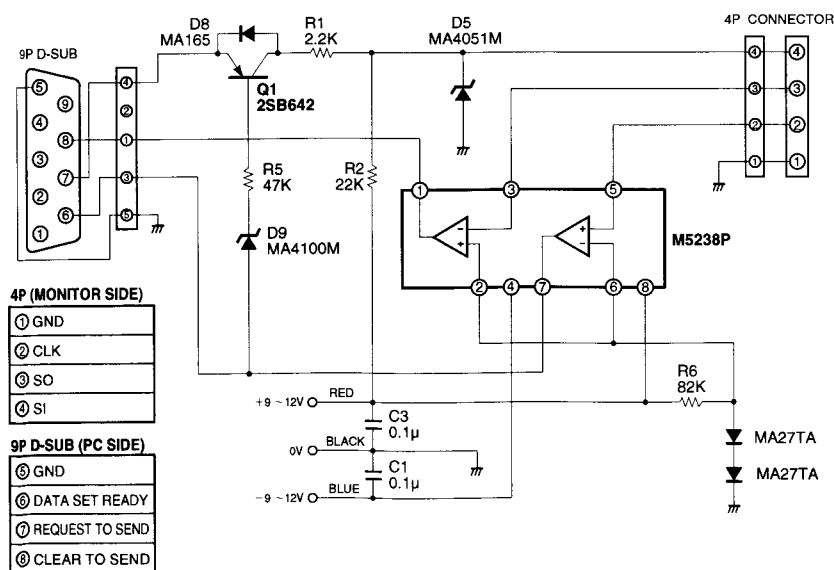
- Signal Generator**

It is necessary for you to use a signal generator which operates on fh 95 kHz, fv 180 Hz, and fc 158 MHz bands.

## INTERFACE CONNECTION



## INTERFACE SCHEMATIC DIAGRAM



BATTERY CONNECTION

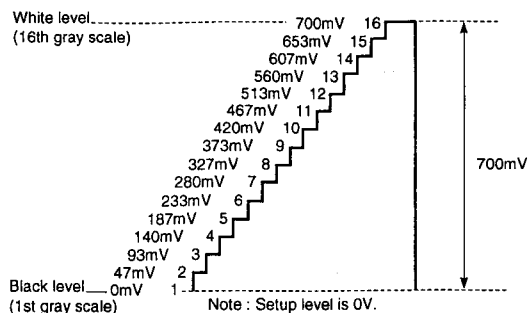
## OTHER TOOLS

- Oscilloscope (dual trace)
- Scope probe – Attenuation: 100:1  
Attenuation: 10:1
- Digital Voltmeter – Range: 0 to 1000 V DC  
Accuracy: 0.1 %
- TV color Analyzer II – that reads luminance and chromaticity X and Y coordinates.
- High Voltag Probe
- AC power supply – Output voltage : 0 to 300 V
- Degaussing coil
- Convergence meter
- Scale
- Microscope – Scale factor: 50

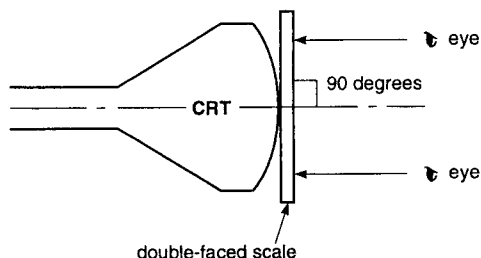
## STANDARD CONDITION OF ADJUSTMENT PROCEDURE

- Signal timing : Preset timing
- Display pattern : White, full "H" character
- Signal level : V/H: TTL level video: 700 mV
- Input source : AC 100~240 V, 50/60 Hz
- Ambient temperature : Room temperature
- Warm-up time : More than 30 minutes
- Brightness control : Center
- Contrast control : Max.
- Magnetic field : Vertical: 40  $\mu$ T  
Horizontal: 0  $\mu$ T
- Signal cable : Attached

Video input signal from PC.



- Use a Helmholtz device to adjust an unit with no horizontal magnetic field and a vertical field of 40  $\mu$ T. Inspect the unit under the same conditions.
- The ambient illuminance must be 200 lux.
- Use an external degaussing coil any time the DEGAUSS switch does not remove color shading.
- To check the image width, height, linearity and distortion, proceed as below.



## ADJUSTMENT SOFTWARE

### 1. Software operating procedure

- Power on the computer.
- Connect the Communication cable for monitor adjustment.
- Insert the adjustment disk into the drive.
- At the A:> prompt type "VSR", then press [ENTER].

A function to identify the connected monitor is provided to prevent accidents due to erroneous use of the HV10S chassis program. If this program is used for any monitor other than the HV10S, the message reading "This monitor is not an HV10S chassis. All further activity has been prevented" is displayed and the operation is stopped.

- Refer to the adjustment procedures.

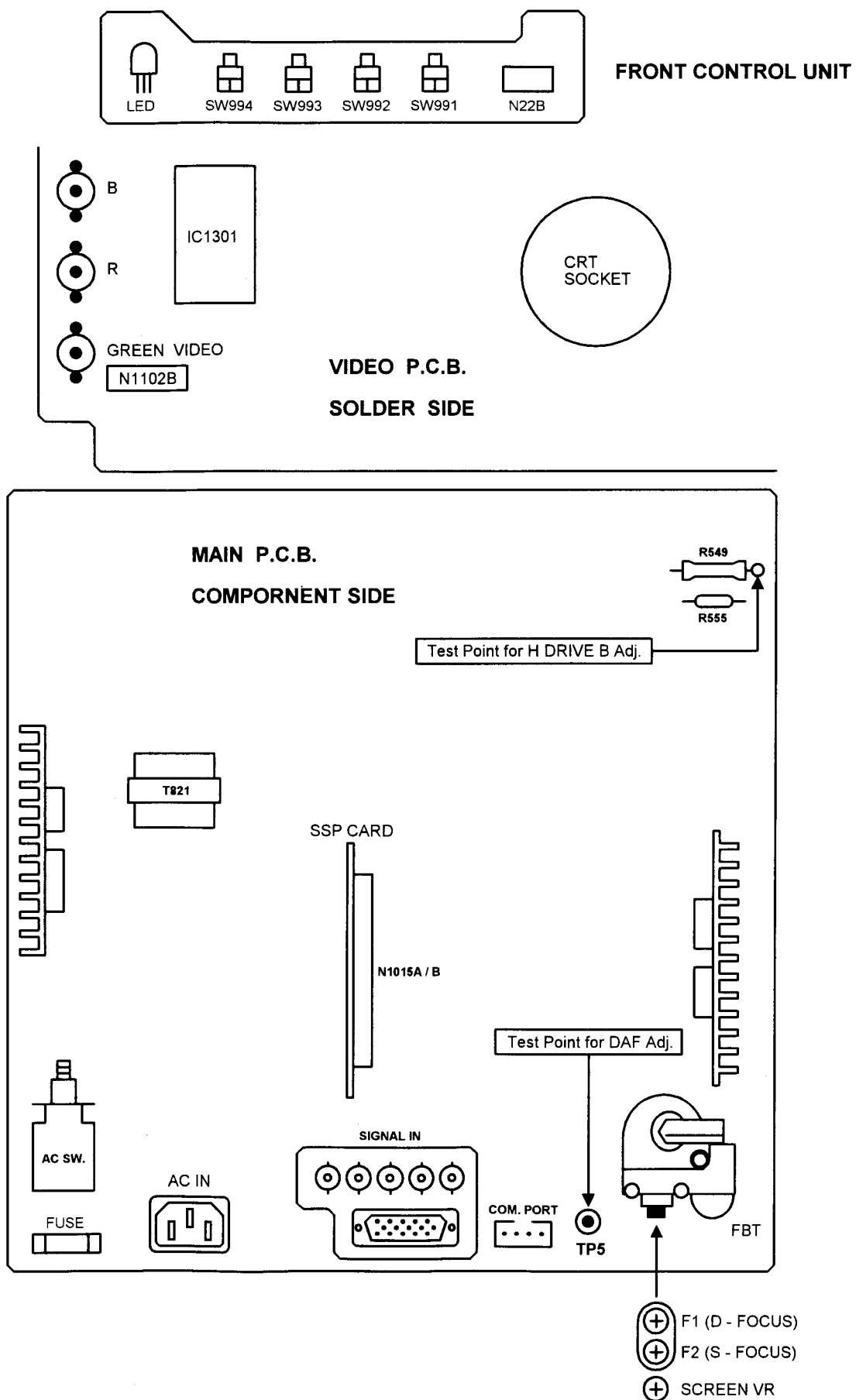
### 2. Adjustment Program

Main Menu of Adjustment Program

- <<HV10S ADJUSTMENT PROGRAM MENU>>  
(e: exit, q: quit) <Ver \*.\*>
- |                          |                           |
|--------------------------|---------------------------|
| 1) Load data from FILE   | 6) Save data to FILE      |
| 2) Adjust VSR setting    | 7) Special ADJUST         |
| 3) Adjust STD setting    | 8) Information Service    |
| 4) Adjust Factory preset | 9) Show Version & Error   |
| 5) Clear User preset     | 10) DDC EDID Date setting |



SERVICE ADJUSTMENT CONTROL LOCATION



**REQUIRED ADJUSTMENT PROCEDURE AFTER A PARTS IS REPLACED (✓ IS REQUIRED)**

ADJUSTMENT ITEM	REPLACED PARTS									
	MAIN P.C.B.	SSP CARD	VIDEO P.C.B.	CRT DY	IC1301 IC1302 IC1303 IC1305 IC1331	Q1065 Q1165 Q1265	IC490	IC580	Q550 IC850 Q881	FBT IC671 Q601
A DATA SETTING *	✓	✓								
B H. DRIVE +B ADJUST	✓	✓						✓		
C EHT ADJUST	✓	✓		✓					✓	
D H CENTER ADJUST	✓	✓		✓					✓	
E SUB ADJUST	✓	✓		✓			✓		✓	
F VSR SETTING	✓	✓		✓			✓		✓	
G PRESET ADJUST	✓	✓		✓			✓		✓	
H BRIGHTNESS, COLOR	✓	✓	✓	✓	✓	✓			✓	
I DAF ADJUST	✓	✓		✓					✓	
J FOCUS ADJUST	✓	✓		✓					✓	
K DATA SAVING	✓	✓	✓	✓	✓	✓	✓	✓	✓	
L DDC DATA SETTING	✓	✓								
PURITY & CONVERGENCE				✓						
SCREEN CHECK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

\* (A) DATA SETTING : Do not load standard data except when main PCB and SSP Card are replaced.

## ADJUSTMENT PROCEDURE


Note 1 : Check to be sure that the program disk name is **S110** before making necessary adjustment.

Note 2 : Unless otherwise specified, the monitor state is as given at right.

Note 3 : The underlined places indicate the adjustment items on the screen of the PC.

### 1. Description of Adjustment Method

ITEM Program Menu		◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
A	<b>STANDARD DATA SETTING</b> 1) Load data from FILE		A1		Turn on the power switch of the monitor.	
			A2		Set the cell to the menu at left and press [↵].	
			A3		A massage <b>FILE → EEPROM FILE NAME (q or Q escape) [ ] :</b> is displayed. So key in the DACDATA.DAT (when using the standard data) and press [↵].	
			AE		Turn off the power switch of the monitor, then turn on again.	
		<b>Do not load standard data except when Main P.C.B. and SSP Card are replaced.</b>				
B	<b>H. DRIVE +B</b> 2) Adjust VSR setting	◇ Digital Voltmeter ▼ R549 ~ GND Refer to Service Adjustment Control Location for this connect point.  □ Crosshatch	B1	HV10S-1	Set the cell to the menu at left and press [↵].	25.3V ±0.5V
			B2		Set the cell to the adjusting mode <u>INTP [0]</u> and press [↵].	
			B3		Check that the input signal to the monitor is [fH 29.1KHz] and [fV 47.5Hz] and press [↵].	
			B4		Set the cell to <u>H. DRIVE +B</u> and press [↵].	
			B5		Make the adjustment to the value shown at right by using [←] and [→].	
			B6		Register by press [↵] and return to menu of <b>B2</b> by press [ E ].	
			B7	HV10S-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	23.4V ±0.5V
			B8		Select Adjusting mode <u>INTP [1]</u> , and repeat above ( <b>B4 B5 B6</b> ) procedure.	
			B9	HV10S-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	21.4V ±0.5V
			B10		Select Adjusting mode <u>INTP [2]</u> , and repeat above ( <b>B4 B5 B6</b> ) procedure.	
			B11	HV10S-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	19.2V ±0.5V
			B12		Select Adjusting mode <u>INTP [3]</u> , and repeat above ( <b>B4 B5 B6</b> ) procedure.	
	BE		Press [ E ] to return to main menu.			

ITEM Program Menu		<input type="checkbox"/> Test Meter <input checked="" type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
C	<b>EHT ADJUST</b> 3) Adjust OTHER setting	<input checked="" type="checkbox"/> Digital Voltmeter <input checked="" type="checkbox"/> High Voltage Probe <input checked="" type="checkbox"/> Anode Cap ~ GND <input type="checkbox"/> RGB off (Sync only)	C1		Turn the power switch of the monitor OFF.	27kV ±0.3kV
			C2		Connect high voltage probe to Anode Cap and GND.	
			C3		Turn the power switch of the monitor ON.	
			C4		Set the cell to the menu at left and press [↵].	
	Adjust NON-VSR Setting		C5		Set the cell to <u>Adjust NON-VSR Setting</u> and press [↵].	
			C6	HV10S-4	Check that the input signal to the monitor is [fH 96.5kHz] and [fV 182.1Hz] and press [↵].	
			C7		Move the cell to <b>EHT</b> and press [↵].	
			C8		Make adjustment to the value shown at right by using [←] and [→].	
			CE		Register by pressing [↵] and return to menu of <b>C5</b> , then return to the main menu by pressing [E].	
D	<b>H. CENTER</b> 2) Adjust VSR setting	<input type="checkbox"/> RGB off (Sync only)	D1		Set the Brightness to MAX by using OSD.	<div style="text-align: center;">             A      A=B      B                Back raster           </div> Set the raster to the center with respect to the bezel.
			D2		Set the cell to the menu at left and press [↵].	
			D3		Set the cell to the adjusting mode <u>INTP [0]</u> and press [↵].	
			D4	HV10S-1	Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz] and press [↵].	
			D5		Set the cell to <u>H CENTER</u> and press [↵].	
			D6		Make the adjustment to the value shown at right by using [←] and [→].	
			D7		Press [↵] to register, and return to menu of <b>D3</b> .	
			D8	HV10S-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	
			D9		Select Adjusting mode <u>INTP [1]</u> , and repeat above ( <b>D5 D6 D7</b> ) procedure.	
			D10	HV10S-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	
			D11		Select Adjusting mode <u>INTP [2]</u> , and repeat above ( <b>D5 D6 D7</b> ) procedure.	
			D12	HV10S-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	
			D13		Select Adjusting mode <u>INTP [3]</u> , and repeat above ( <b>D5 D6 D7</b> ) procedure.	
			DE		Return to the main menu by pressing [E].	

ITEM	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
<b>SUB ADJUST</b> 3) Adjust OTHER setting  Adjust NON-VSR Setting	□ Crosshatch	E1 E2 E3 E4	Mode-1	Set the cell to the menu at left and press [↵], then go to sub menu. Set the cell to <u>Adjust NON-VSR Setting</u> at the sub menu and press [↵]. Check that the input signal to the monitor is [fH 93.8KHz] and [fV 75.0Hz] and press [↵]. Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→].  <div style="display: flex; justify-content: space-between;"> <div> * <u>H SIZE</u>  * <u>V SIZE</u>  ① <u>V POSITION</u>  ② <u>V LIN (S)</u>  ③ <u>V LIN (C)</u>  ④ <u>V PCC (S)</u> </div> <div> * <u>H POSITION</u>  * <u>V PCC</u>  ⑤ <u>V PCC CORNER</u>  ⑥ <u>TRAPEZOID</u>  ⑦ <u>PARALLELOGRAM</u>  ⑧ <u>V PCC BALANCE</u> </div> </div> After adjustment, return to menu of <b>E2</b> by pressing [ E ], then return to the main menu by pressing [ E ].	②③④⑤⑥⑦⑧: Best point  ① / H Posi : Center  H : 392mm V : 294mm
<div style="border: 1px solid black; padding: 5px; margin: 5px;"> H Size, H Position, V Size and V PCC adjustment do not register to interpolation data. </div>					
<b>VSR SETTING</b> 2) Adjust VSR Setting	□ Crosshatch	F1 F2 F3 F4	HV10S-1	Set the cell to the menu at left and press [↵]. Set the cell to the adjusting mode <u>INTP [0]</u> and press [↵]. Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz] and press [↵]. Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→].  * <u>V POSITION</u> ① <u>H SIZE</u> ③ <u>V SIZE</u> ② <u>H POSITION</u> ④ <u>V PCC GAIN</u>	① : 392mm ±5 ③ : 294mm ±5  ② / V Posi : Center  ④ : Best point
<div style="border: 1px solid black; padding: 5px; margin: 5px;"> V Position adjustment do not register to interpolation data. </div>					
		F5 F6 F7 F8 F9 F10 F11 FE	HV10S-2  HV10S-3  HV10S-4	Press [↵] to register, and return to menu of <b>F2</b> . Input signal [fH 52.2kHz] and [fV 92.3Hz] Select Adjusting mode <u>INTP [1]</u> , and repeat above ( <b>F4 F5</b> ) procedure. Input signal [fH 75.2kHz] and [fV 137.2Hz] Select Adjusting mode <u>INTP [2]</u> , and repeat above ( <b>F4 F5</b> ) procedure. Input signal [fH 96.5kHz] and [fV 182.1Hz] Select Adjusting mode <u>INTP [3]</u> , and repeat above ( <b>F4 F5</b> ) procedure. Return to the main menu by pressing [ E ].	

ITEM Program Menu		◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value	
G	<b>PRESET ADJUST</b> 4) Adjust Factory preset	□ Crosshatch	G1	Mode-1	Set the cell to the menu at left and press [↵]. Check that the input signal to the monitor is [fH 93.8KHz] and [fV 75.0Hz] and press [↵]. Set the cell to following items, press [↵] and make the adjustment to the value shown at right by using [←] and [→].  ① <u>H. SIZE</u> ⑤ <u>V. PCC</u> ② <u>H. POSI</u> ⑥ <u>V. PCC BALANCE</u> ③ <u>V. SIZE</u> ⑦ <u>TRAPEZOID</u> ④ <u>V. POSI</u> ⑧ <u>PARALLEL</u>	① : 392mm ±5 ③ : 294mm ±5 ②④ : Center ⑤⑥⑦⑧ : Best point	
		G2					
		G3					
			G4	Mode-2	After adjustment, return to main menu by pressing [ E ] and [ Y ]. Check that the input signal to the monitor is [fH 31.5KHz] and [fV 60.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point	
			G5				
			G6				
			G7	Mode-3	After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ]. Check that the input signal to the monitor is [fH 46.9KHz] and [fV 75.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point	
			G8				
			G9				
			G10	Mode-4	After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ]. Check that the input signal to the monitor is [fH 60.0KHz] and [fV 75.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point	
			G11				
			G12				
			G13	Mode-5	After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ]. Check that the input signal to the monitor is [fH 68.7KHz] and [fV 75.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point	
			G14				
			G15				
			G16	Mode-6	After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ]. Check that the input signal to the monitor is [fH 64.0KHz] and [fV 60.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→]. After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ].	① : 368mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point	
			G17				
			G18				
- To be continued -							

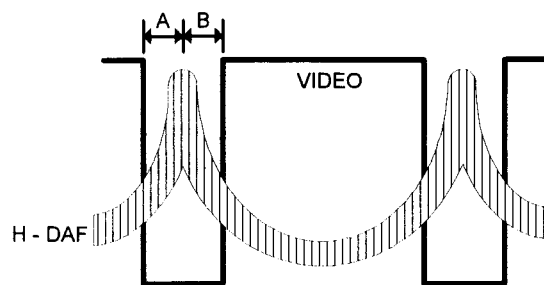
ITEM Program Menu		◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
G	<b>PRESET ADJUST</b> 4) Adjust Factory preset	□ Crosshatch	G19	Mode-7	Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→]. After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ Y ].	① : 368mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
			G20			
			G21			
			G22	Mode-8	Check that the input signal to the monitor is [fH 87.5KHz] and [fV 70.0Hz] and press [↵]. Make adjustment ①~⑧ of <b>G3</b> to the value shown at right by using [←] and [→]. After adjustment, return to the menu of <b>G2</b> by pressing [ E ] and [ N ], then return to the main menu by pressing [ E ].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
			G23			
			GE			
H	<b>CRT CUT-OFF ADJUST</b>	◇ TV Color Analyzer II □ RGB Off (Sync only)	H1	Mode-1	Set the Contrast to MAX, Brightness to Center and Color is "9300k +8" using the OSD.	
			H2		Check that the input signal to the monitor is [fH 93.8KHz], [fV 75.0Hz] and turn off the RGB signal.	
	3) Adjust OTHER setting		H3		Set the cell to the menu at left and press [↵].	
	Adjust VIDEO Setting		H4		Set the cell to <u>Adjust VIDEO Setting</u> at the sub menu and press [↵].	
			H5 ~ H14		Make the adjustment <u>R, G and B Low Light</u> by using [←] [→] and Screen VR to CRT cut-off. <b>Please refer to flow chart for this adjustment on page 30.</b>	
	<b>BRIGHTNESS / COLOR ADJUST</b>	□ White window (8cm×8cm at center)	H15		Change to the pattern at left.	Y=105 cd/m <sup>2</sup> x=0.283 ±0.20 y=0.293 ±0.20
			H16		Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. <u>R. SUB CONT (COLOR0)</u> <u>G. SUB CONT (COLOR0)</u> <u>B. SUB CONT (COLOR0)</u>	
			H17		Set Contrast to MIN using the OSD.	
			H18		Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. <u>R. LOW LIGHT</u> <u>G. LOW LIGHT</u> <u>B. LOW LIGHT</u> <b>Adjust two colors only out of above three as shown in H13 on page 30.</b>	x=0.283 ±0.20 y=0.293 ±0.20
			H19		Set Contrast to MAX using the OSD.	Y=105 cd/m <sup>2</sup> x=0.283 ±0.20 y=0.293 ±0.20
			H20		Check the value shown at right, then If out of range, to repeat <b>H15~H18</b> .	
					- To be continued -	

ITEM Program Menu		<input type="checkbox"/> Test Meter <input type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
H	<b>ABL</b>	<input type="checkbox"/> White flat field (full window)	H21	Mode-1	Change to the pattern at left. Move the cell to <u>ABL (COLOR0)</u> and make the adjustment to the value shown at right by using [←] and [→]. Press [ E ] to messages will appear. <b>Start automatic calculation. OK (y/n) -&gt;</b> Press[ Y ]and [↵]. <b>Refresh LOW-LIGHT2 data (y/n) -&gt;</b> Press[ Y ]and [↵], then return to menu of <b>H4</b> . Return to the main menu by pressing [ E ].	Y=95 cd/m <sup>2</sup>
			H22			
			H23			
			H24			
			H25			
			H26			
	<b>1.0V ADJUST</b> 7) Special ADJUST 1: Adjust VIDEO 1.0Vpp	<input type="checkbox"/> White window (8cm×8cm at center)	H27		Change to the pattern at left. Change signal to 1.0V p-p Video. Set the cell to the menu at left and press [↵]. Select the <u>1: Adjust VIDEO 1.0Vpp</u> from the menu. Make the adjustment to the value shown at right by using [←] and [→]. Press [↵] to return to menu of <b>H30</b> , then return to the main menu by pressing [ E ].	Y=105 cd/m <sup>2</sup>
			H28			
			H29			
			H30			
			H31			
			HE			
I	<b>DAF ADJUST</b> 2) Adjust VSR setting	<input type="checkbox"/> White flat field <input type="checkbox"/> Oscilloscope ▼ TP5~GND 100:1 probe ▼ N1102B ~ GND 10:1 probe	I 1	HV10S-1	Set the cell to the menu at left and press [↵]. Set the cell to the menu at left and press [↵]. Set the cell to the adjusting mode <u>INTP [0]</u> and press [↵]. Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz]. Set the cell to <u>H DAF PHASE</u> and press [↵]. Adjust as shown at below by using [←] and [→], and press [↵] for registration. (Refer to <b>Fig. 16</b> for adjustment on next page) Set the cell to <u>H DAF GAIN</u> and press [↵]. Adjust as shown at right by using [←] and [→], and press [↵] for registration. (Refer to <b>Fig. 18</b> for adjustment on next page) Press [↵] to register, and return to menu of <b>I3</b> . Input signal [fH 52.2kHz] and [fV 92.3Hz] Select Adjusting mode <u>INTP [1]</u> , and repeat above ( <b>I5 I6 I7 I8 I9</b> ) procedure. Input signal [fH 75.2kHz] and [fV 137.2Hz] Select Adjusting mode <u>INTP [2]</u> , and repeat above ( <b>I5 I6 I7 I8 I9</b> ) procedure. Input signal [fH 96.5kHz] and [fV 182.1Hz] Select Adjusting mode <u>INTP [3]</u> , and repeat above ( <b>I5 I6 I7 I8 I9</b> ) procedure. Return to the main menu by pressing [ E ].	C - D = 468V
			I 2			
			I 3			
			I 4			
			I 5			
			I 6			
			I 7			
			I 8			
			I 9			
			I 10			
			I 11			
			I 12			
			I 13			
			I 14			
			I 15			
			I E			



**Fig. I4**

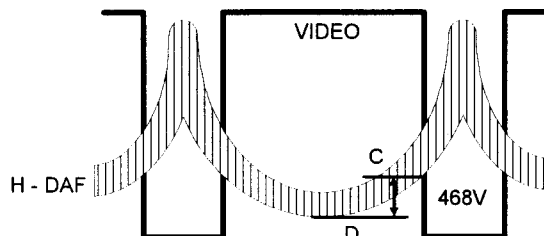
Set position to A=B

**Fig. I8**

Set voltage to C - D = 468V

C : Closing VIDEO and H. DAF

D : Bottom of H. DAF



Oscilloscope Range

HV10S - 1 10  $\mu$ s / div.HV10S - 2 5  $\mu$ s / div.HV10S - 3 5  $\mu$ s / div.HV10S - 4 2  $\mu$ s / div.

ITEM Program Menu		<input type="checkbox"/> Test Meter <input checked="" type="checkbox"/> Test Point <input type="checkbox"/> Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
J	<b>FOCUS</b>	<input type="checkbox"/> Character	J1	MODE-1	Check that the input signal to the monitor is [fH 93.8KHz] and [fV 75.0Hz]. Make the corner sections of the screen optimum by turning D-FOCUS VR on the FBT. Make the center section optimum by turning S-FOCUS VR on the FBT. Repeat <b>J2</b> and <b>J3</b> to make it optimum.	
			J2			
			J3			
			J4			
K	<b>DATA SAVING</b> 6) Save data to file		K1		Set the cell to the menu at left and press [↵]. Key in the file name after [ ] :  Use serial number as a file name ( EXAMPLE : FF7410001 = "FF7410.001" )	
			K2			

ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
L  <b>DDC DATA SET</b> 7) Special ADJUST 7: Change DDC data		L1 L2 L3 L4 L5 LE		<p>Set the cell to the menu at left and press [↵].</p> <p>Select the <u>7: Change DDC data</u> from the menu.</p> <p>Key in the monitor serial number and press [↵]. &lt; ID Serial Number : &gt; (4 digits)</p> <p>Key in the product Week and press [↵]. &lt; Week of Manufacture : &gt; (2 digits)</p> <p>Key in the product Year and press [↵]. &lt; Year of Manufacture : &gt; (4 digits)</p> <p>Press [ E ] to return to main menu.</p> <p>To get data of L3 (U/N), L4 (week) and L5 (year) by reading Fig. L from the Serial Number.</p>	

**Fig. L**

**Example**

F	×	7	4	1	0	0	0	1
①	②	③	④					

- ① Factory Code      ③ Month & Date Code  
② Year Code      ④ Unit Number

**S/N : FA7410001**

**Year ----- 1997**

**Week ----- 27**

**Unit Number ----- 0001**

**Data table for Year and Week from the Serial Number**

②③	Year	Week	②③	Year	Week	②③	Year	Week	②③	Year	Week
741	1997	27	811	1998	02	841	1998	27	911	1999	02
742	1997	28	812	1998	03	842	1998	29	912	1999	03
743	1997	30	813	1998	04	843	1998	30	913	1999	04
744	1997	31	814	1998	06	844	1998	32	914	1999	06
745	1997	33	815	1998	07	845	1998	33	915	1999	07
746	1997	34	816	1998	09	846	1998	34	916	1999	09
751	1997	36	821	1998	10	851	1998	36	921	1999	10
752	1997	37	822	1998	11	852	1998	37	922	1999	11
753	1997	39	823	1998	13	853	1998	39	923	1999	13
754	1997	40	824	1998	14	854	1998	40	924	1999	14
755	1997	42	825	1998	16	855	1998	42	925	1999	16
756	1997	43	826	1998	17	856	1998	43	926	1999	17
761	1997	45	831	1998	18	861	1998	45	931	1999	19
762	1997	46	832	1998	20	862	1998	46	932	1999	20
763	1997	47	833	1998	21	863	1998	48	933	1999	21
764	1997	49	834	1998	23	864	1998	49	934	1999	23
765	1997	50	835	1998	24	865	1998	50	935	1999	24
766	1997	52	836	1998	26	866	1998	52	936	1999	26

Conditions

Signal : Turn off the R,G,B (sync signal only)

Adjust Menu : " 3) Adjust OTHER setting " at main menu

" Adjust VIDEO setting " at sub menu

## CRT CUT-OFF ADJUSTMENT

### WARNING

Do not turn the screen VR after this adjustment.

**H5** Set screen VR fully counterclockwise (Min).

**H6** Set BRIGHTNESS to center point by using the OSD

**H7** Set data value to " 30 " for R, G, B LOW LIGHT

**H8** Turn screen VR until the raster appears with any one of three (R,G,B) colors

If Red appears in **H8**

**H9** Set Value to " FF " for < R. LOW LIGHT >

**H10** Turn screen VR until the raster appears with any one of two (G or B) colors.

If Green appears in **H10**

**H11** Set Value to " FF " for < G. LOW LIGHT >

**H12** Adjust Screen VR to " 0.50 " cd/m<sup>2</sup> for Blue raster

**H13** Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [ x=0.283 y=0.298 ]

If Green appears in **H8**

**H9** Set Value to " FF " for < G. LOW LIGHT >

**H10** Turn screen VR until the raster appears with any one of two (R or B) colors.

If Red appears in **H10**

**H11** Set Value to " FF " for < R. LOW LIGHT >

**H12** Adjust Screen VR to " 0.50 " cd/m<sup>2</sup> for Blue raster

**H13** Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [ x=0.283 y=0.298 ]

If Blue appears in **H8**

**H9** Set Value to " FF " for < B. LOW LIGHT >

**H10** Turn screen VR until the raster appears with any one of two (R or G) colors.

If Red appears in **H10**

**H11** Set Value to " FF " for < R. LOW LIGHT >

**H12** Adjust Screen VR to " 3.51 " cd/m<sup>2</sup> for Green raster

**H13** Adjust < R. LOW LIGHT > < B. LOW LIGHT > to [ x=0.283 y=0.298 ]

If Green appears in **H10**

**H11** Set Value to " FF " for < G. LOW LIGHT >

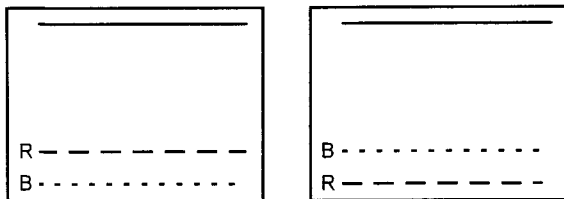
**H12** Adjust Screen VR to " 1.00 " cd/m<sup>2</sup> for Red raster

**H13** Adjust < G. LOW LIGHT > < B. LOW LIGHT > to [ x=0.283 y=0.298 ]

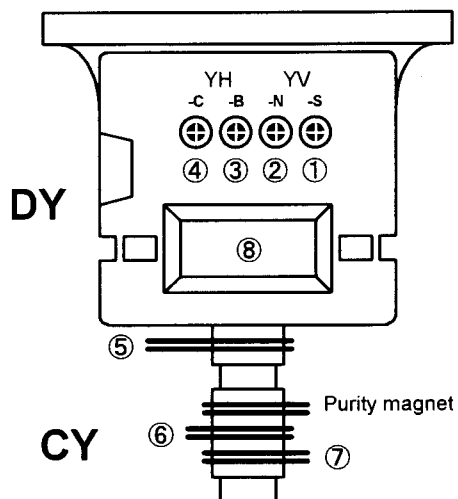
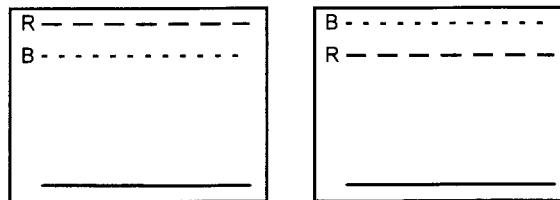
**H14** Test Pattern : 16 gradation grayscale. Adjust screen VR so the 2nd level of gray appears slightly.

## 2. Adjustment Location for Purity and Convergence

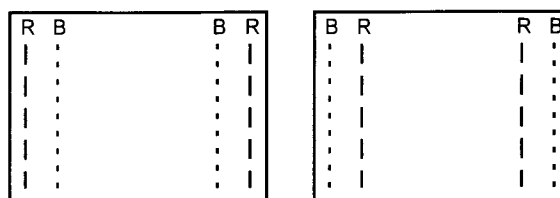
### ① Differential VR YV-S



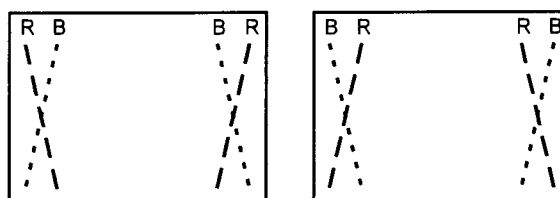
### ② Differential VR YV-N



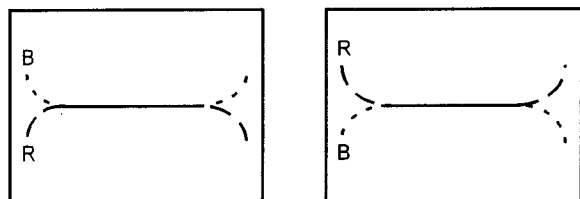
### ③ Differential VR YH-B



### ④ Differential VR YH-C



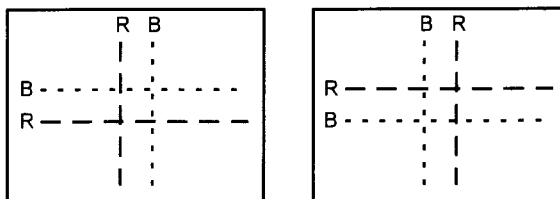
### ⑤ Four-pole magnet B



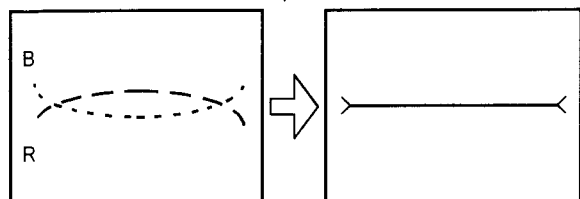
Beams are twisted lefthand

Beams are twisted righthand

### ⑥ Four-pole magnet A



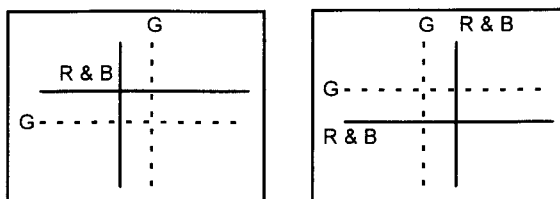
For example lefthand



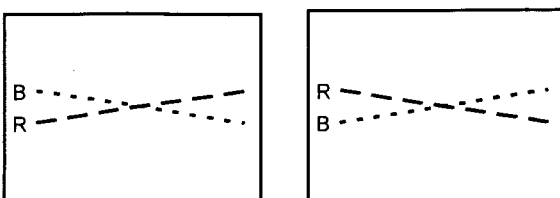
With four-pole magnet B ⑤

With four-pole magnet A ⑥

### ⑦ Six-pole magnet

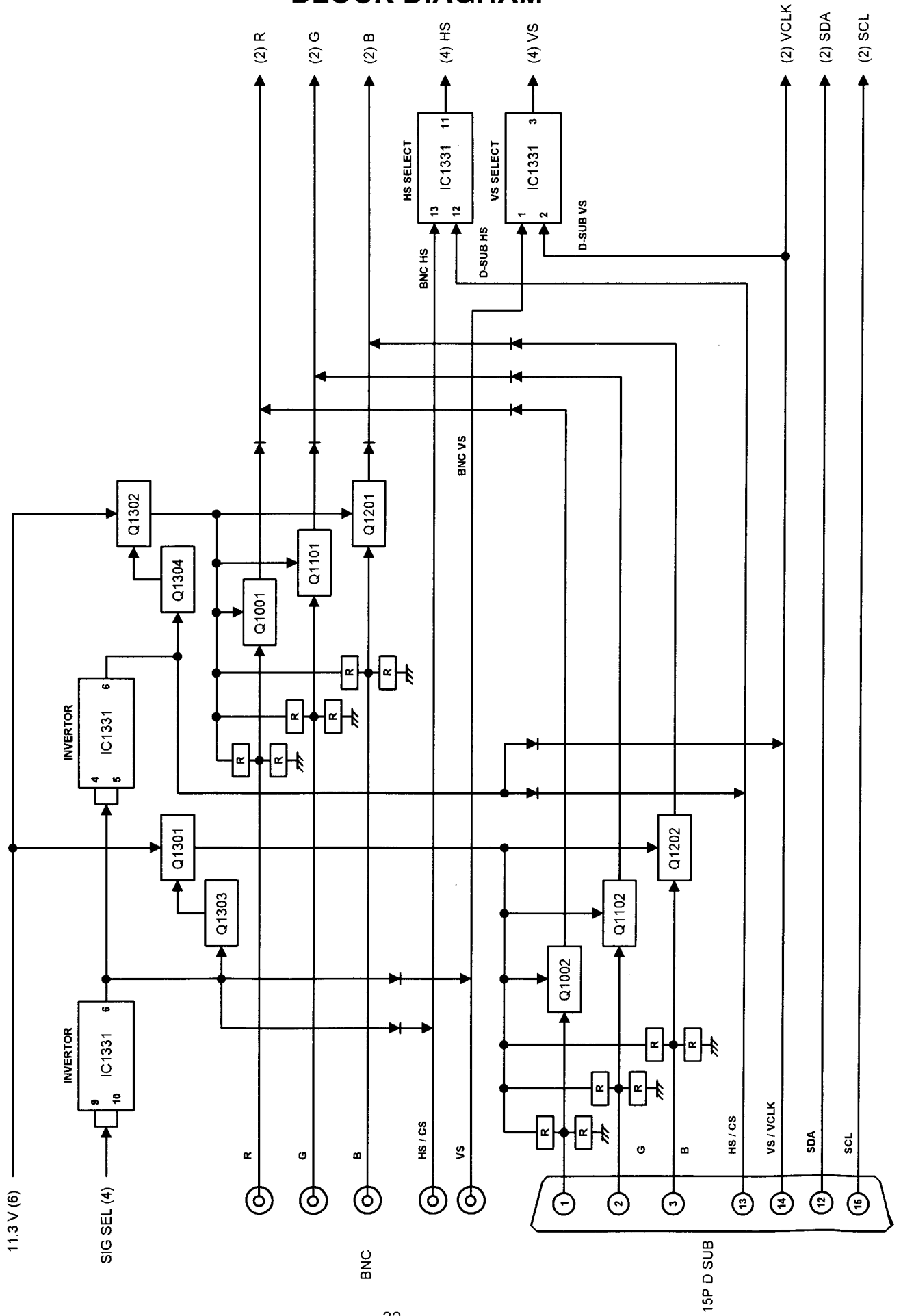


### ⑧ Differential Coil

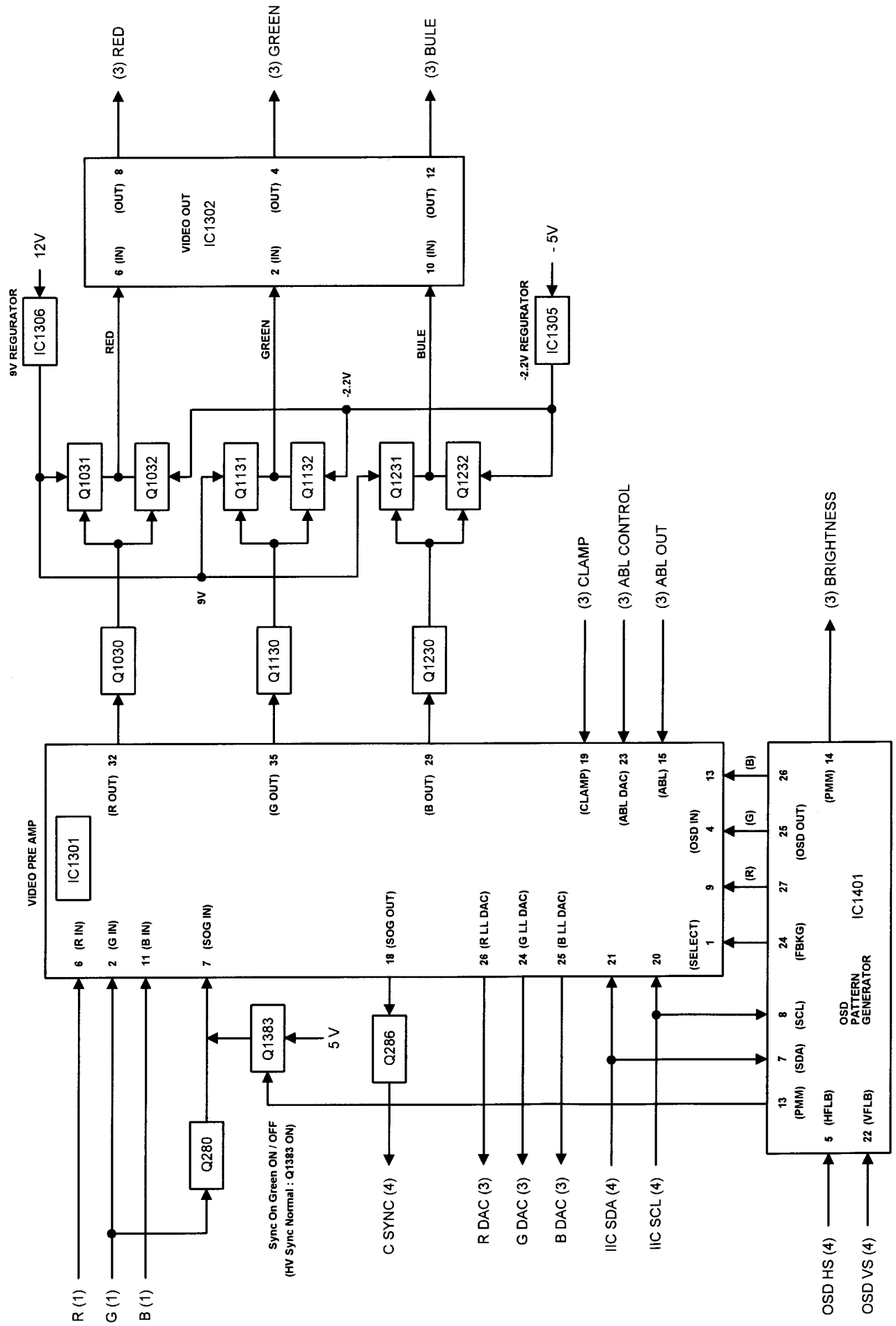


# SHEET (1) / VIDEO AMP for HV10S

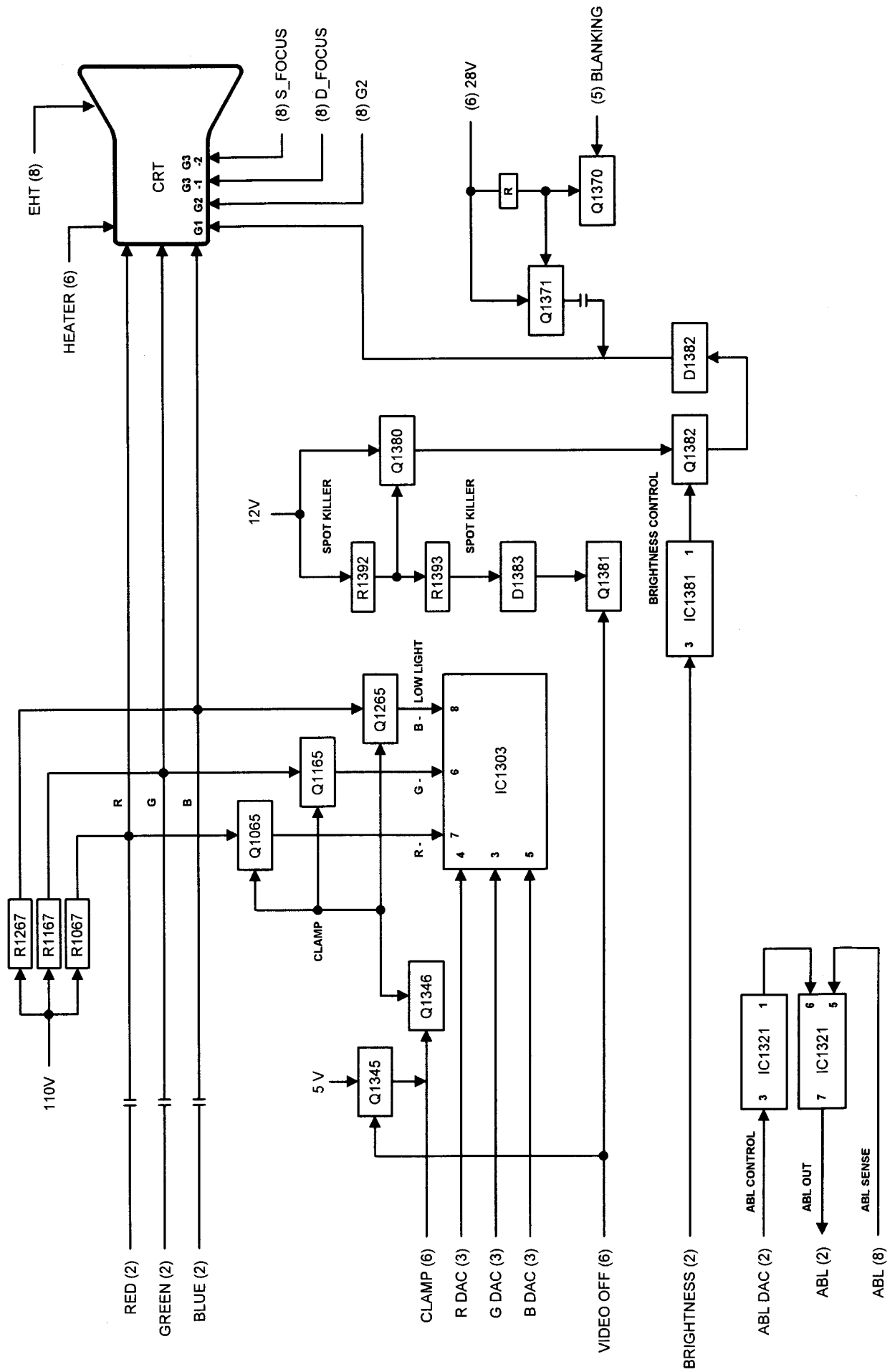
## BLOCK DIAGRAM



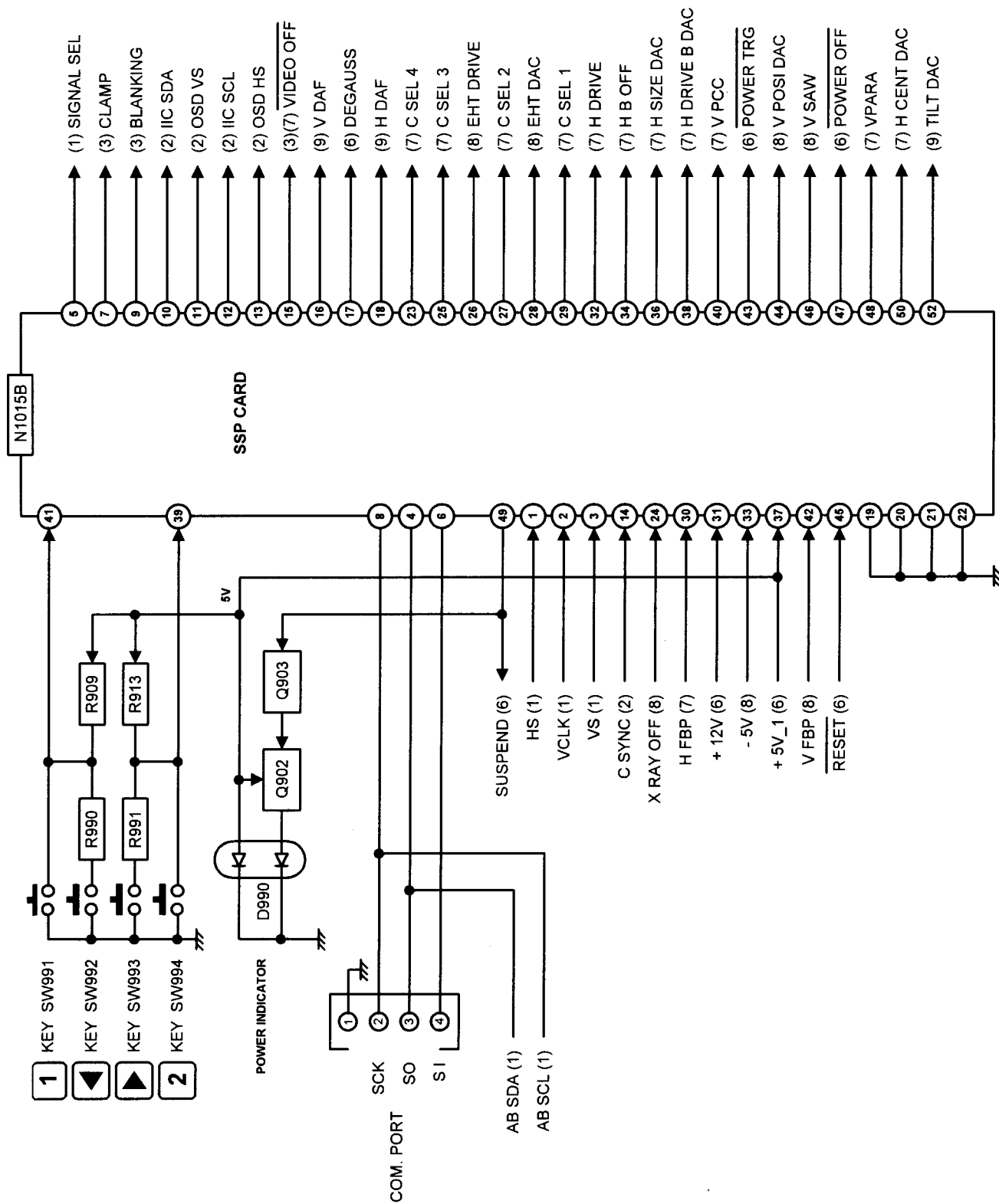
# SHEET (2) / VIDEO OUT for HV10S



# SHEET (3) / VIDEO OUT for HV10S



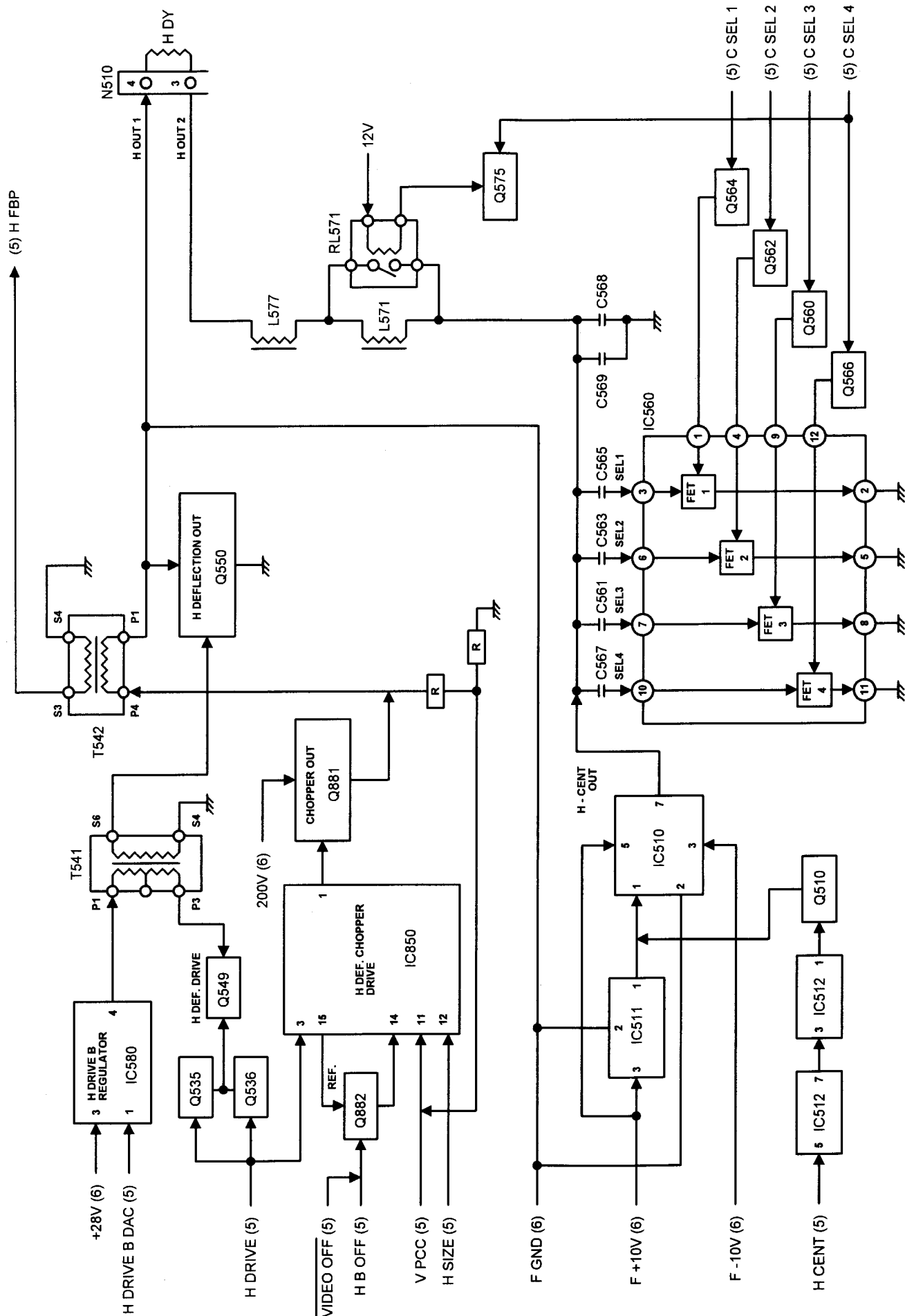
# SHEET (4)(5) / SSP CARD for HV10S



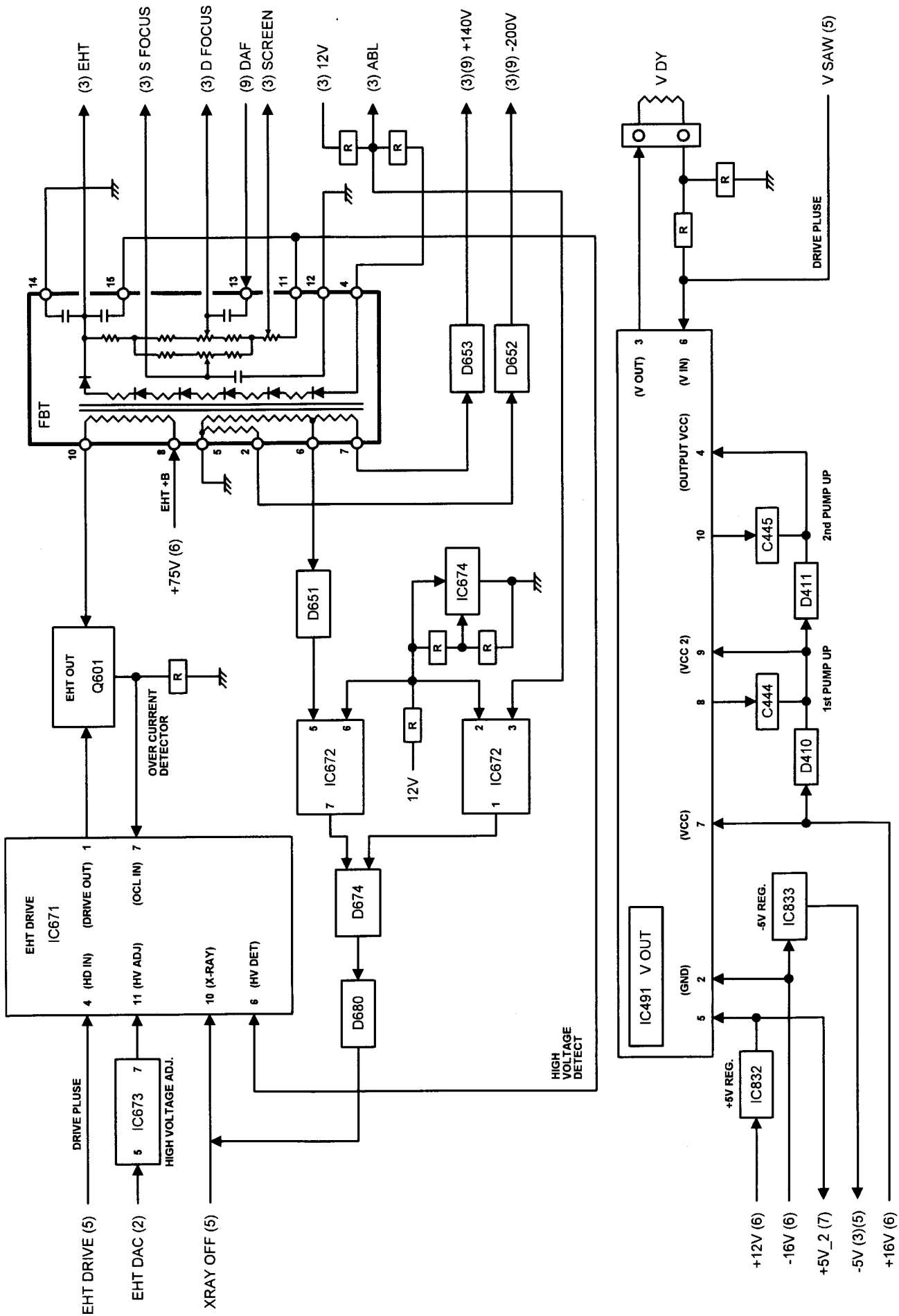




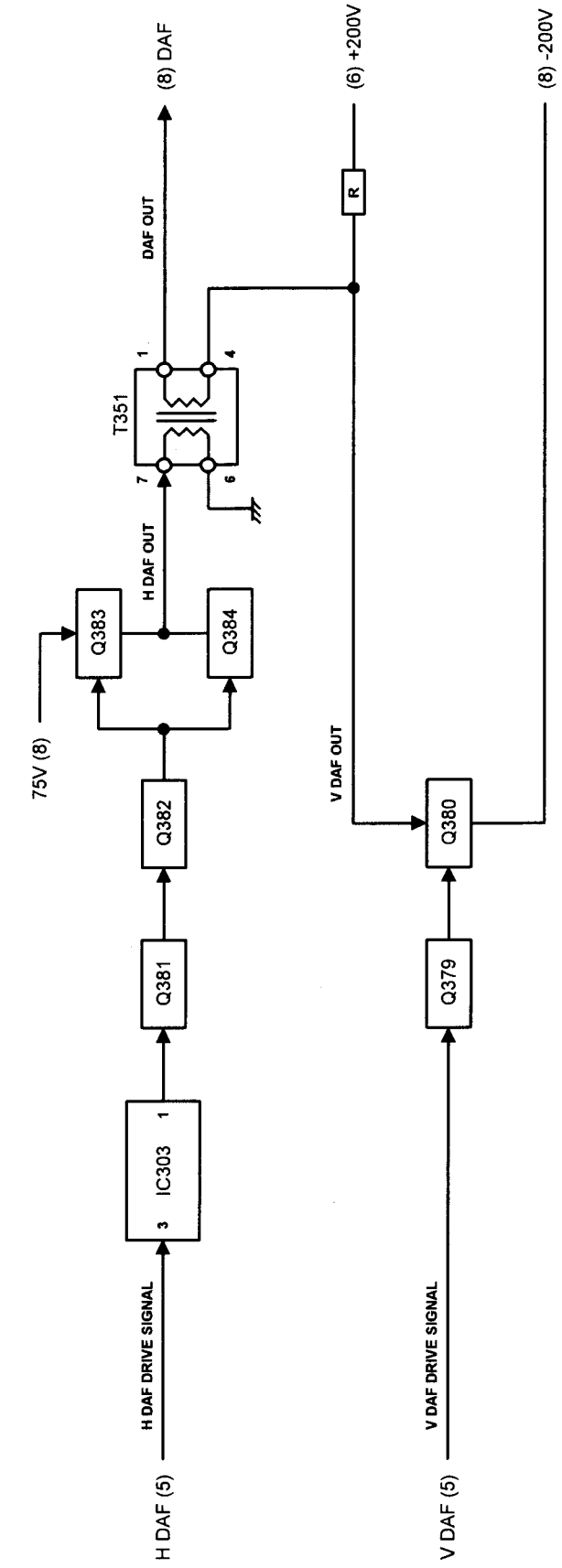
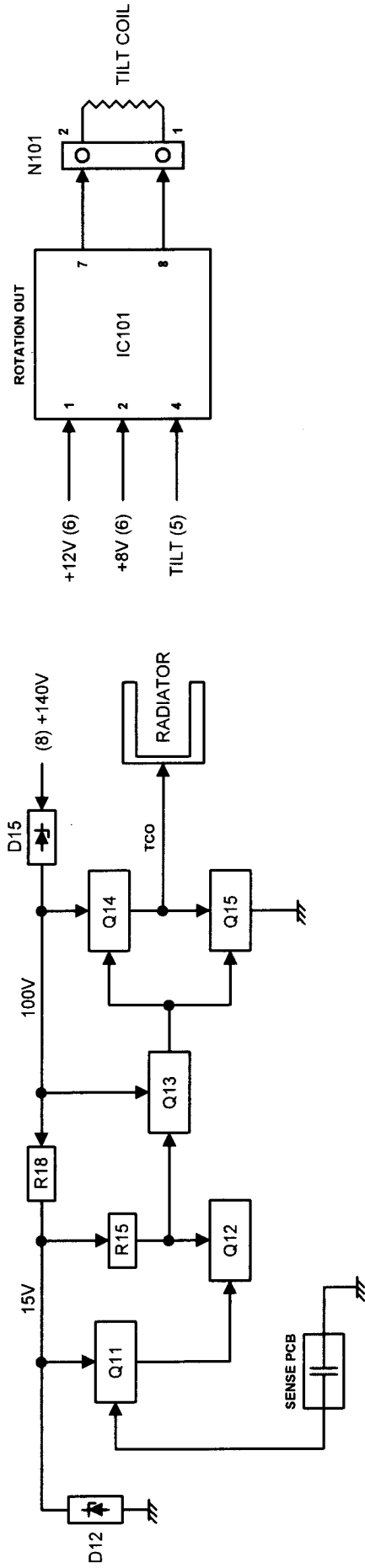
# SHEET (7) / HORIZONTAL DEFLECTION for HV10S



## SHEET (8) / EHT OUT for HV10S

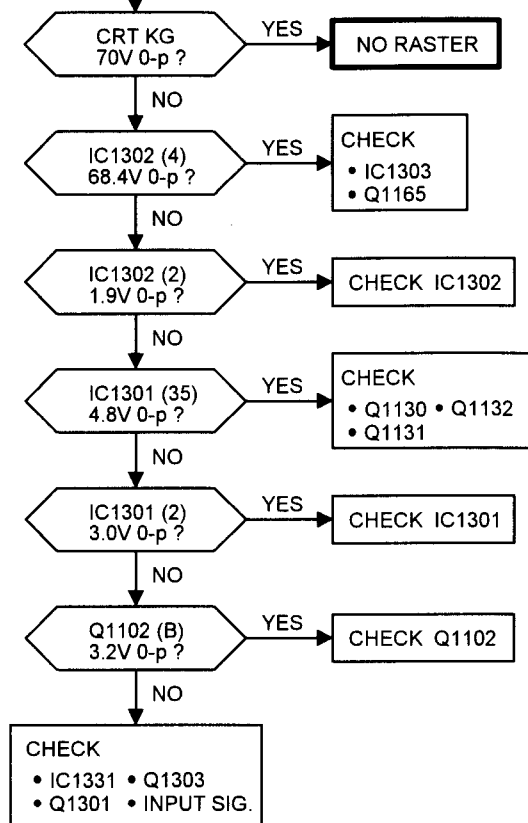


**SHEET (9) DAF OUT / TILT CONTROL / TCO for HV10S**



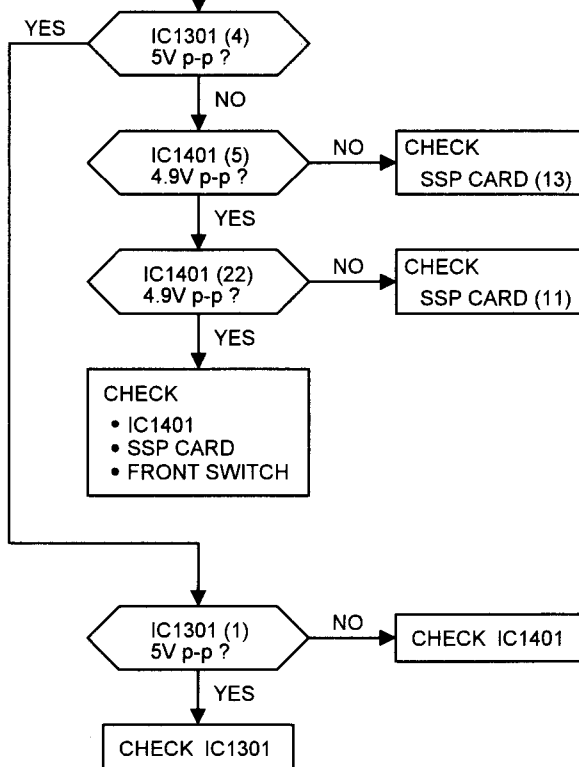
**• NO CHARACTERS  
• MISSING ONE COLOR**

EXAMPLE : GREEN MISSING  
SIGNAL IN : 15P D-SUB

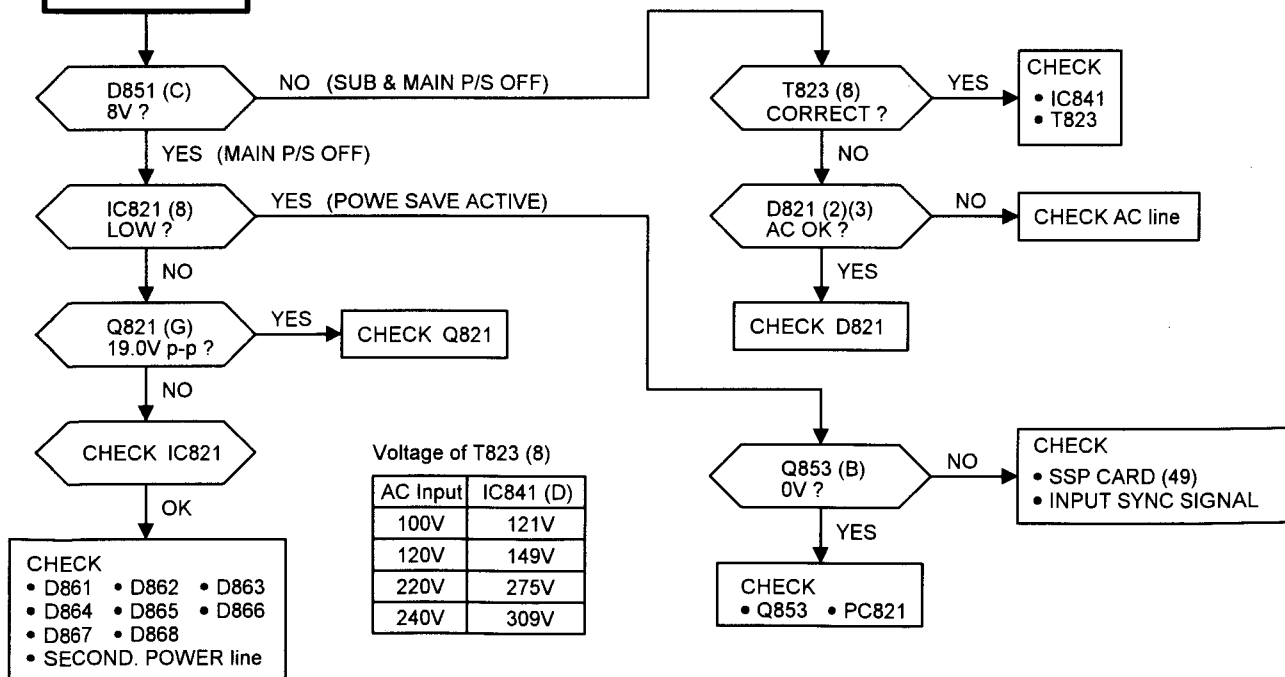


**OSD DOES NOT WORK**

EXAMPLE : GREEN MISSING  
CONDITION : OSD ON

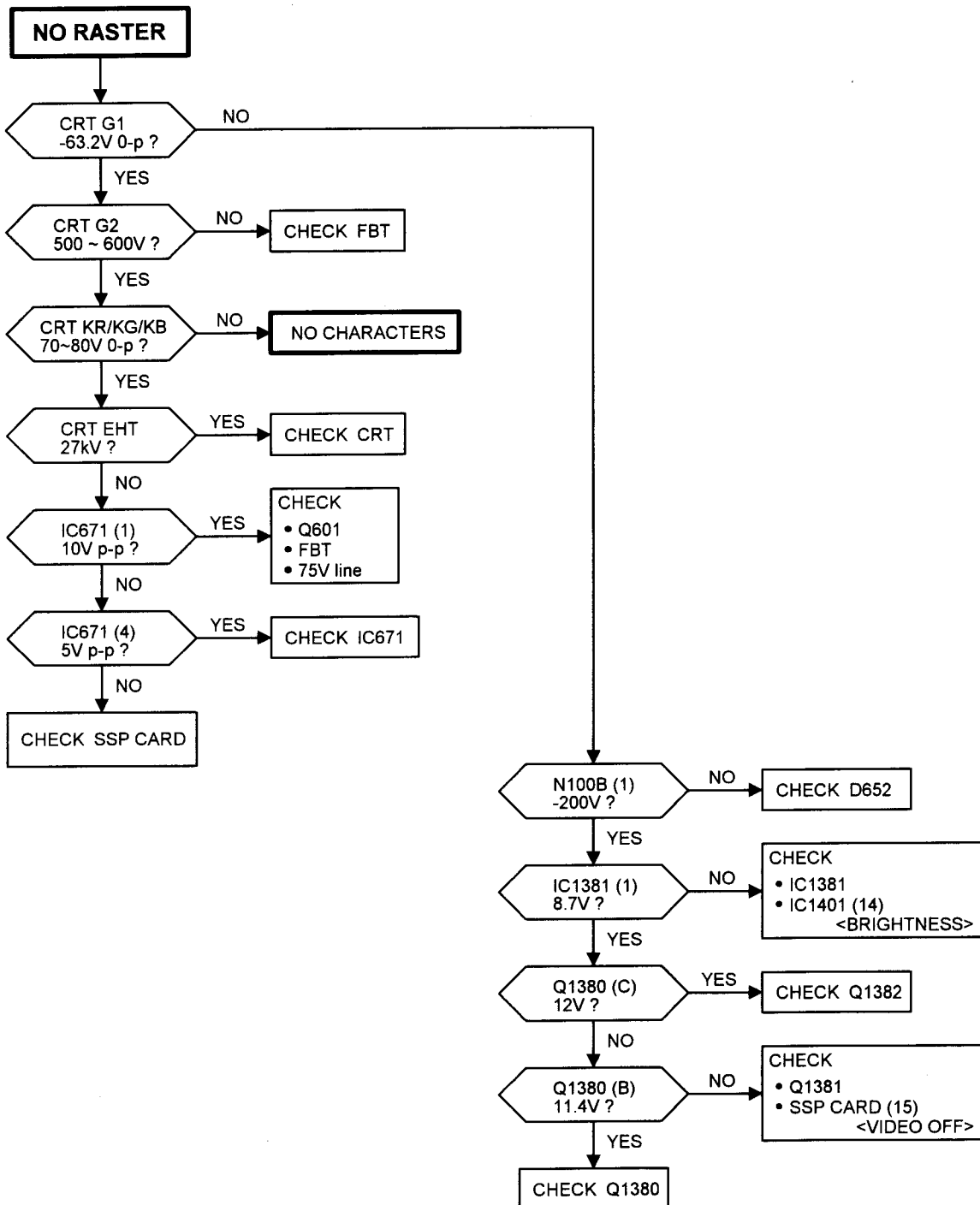


**NO POWER**



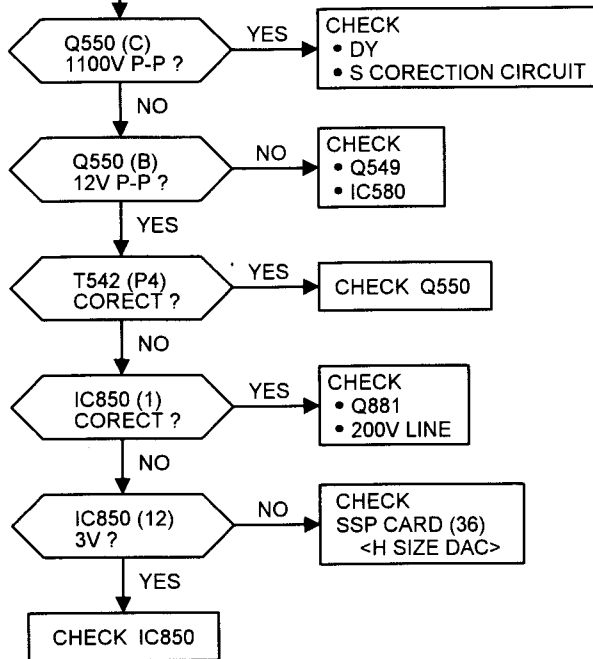
Voltage of T823 (8)

AC Input	IC841 (D)
100V	121V
120V	149V
220V	275V
240V	309V



# INCORRECT H SIZE

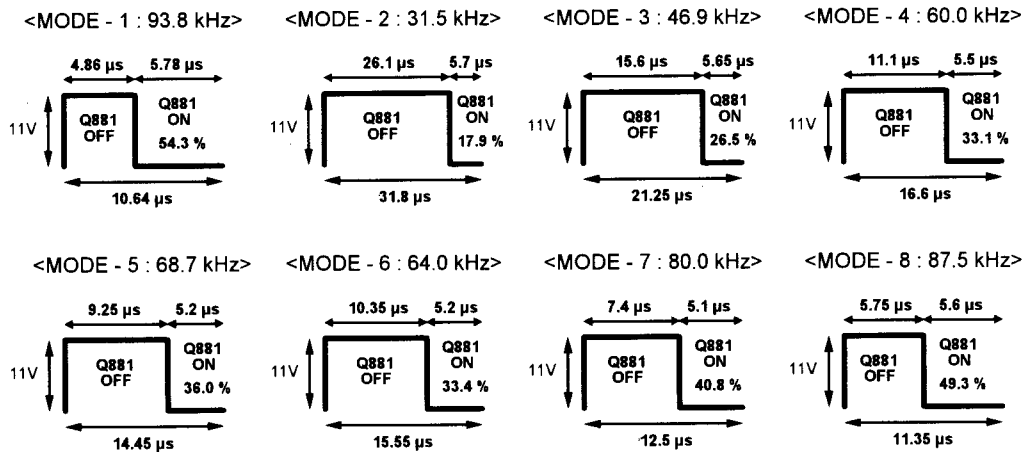
SIGNAL : MODE -1



Voltage of T542 (P4)

	f H	Value
MODE - 1	93.8 kHz	126.5V
MODE - 2	31.5 kHz	42.2V
MODE - 3	46.9 kHz	62.5V
MODE - 4	60.0 kHz	78.8V
MODE - 5	68.7 kHz	89.6V
MODE - 6	64.0 kHz	82.5V
MODE - 7	80.0 kHz	101.9V
MODE - 8	87.5 kHz	116.9V

## IC850 (1) OUTPUT

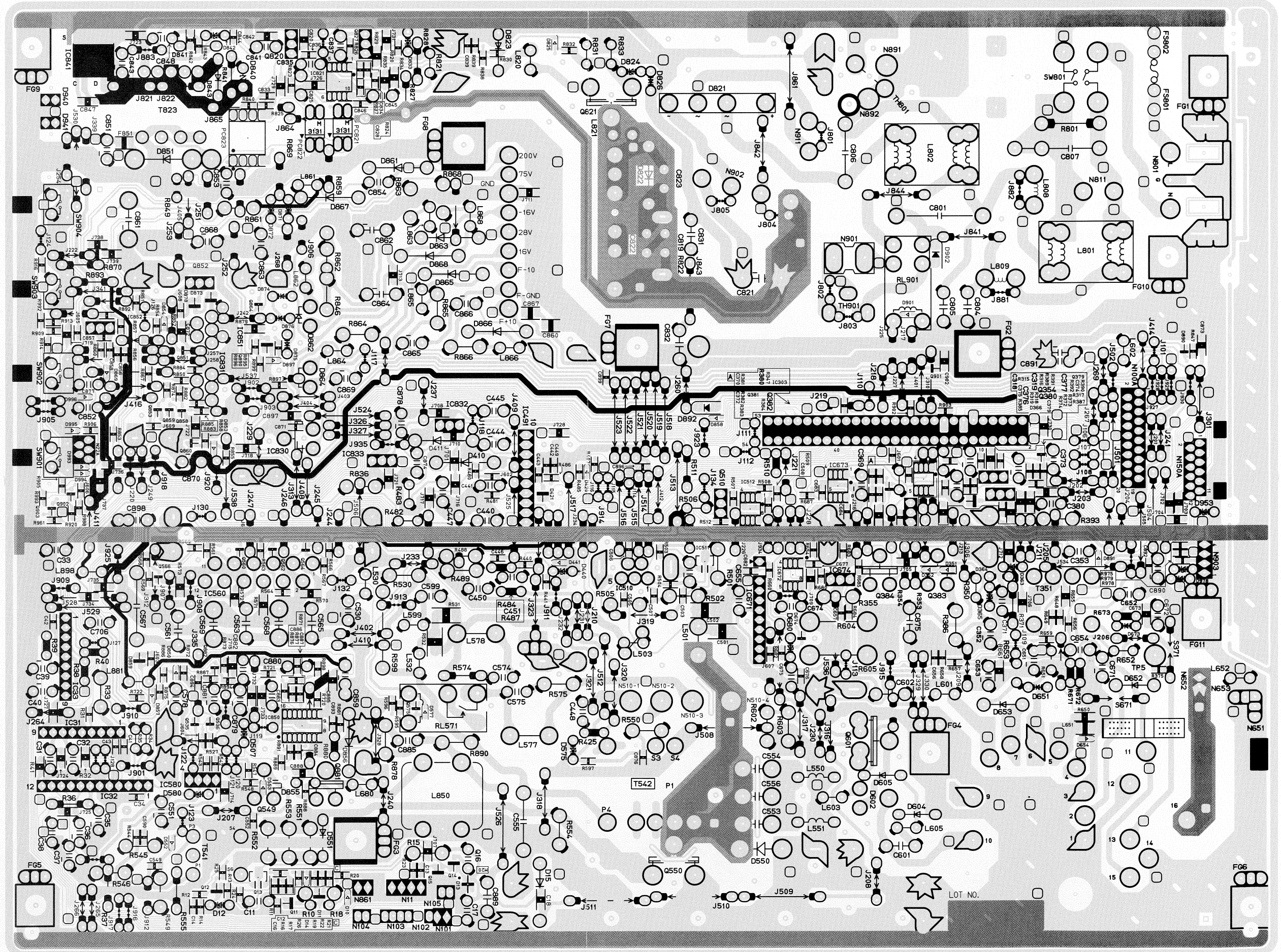


## IC560 ①④⑨⑫ VOLTAGE

SIGNAL	f H	Pin #1	Pin #4	Pin #9	Pin #12	Total Cap.
MODE-1	93.8 kHz	0 V	0 V	0 V	0 V	0.30μF
MODE-2	31.5 kHz	0 V	12 V	12 V	12 V	3.28μF
MODE-3	46.9 kHz	12 V	0 V	12 V	0 V	1.27μF
MODE-4	60.0 kHz	12 V	12 V	0 V	0 V	0.81μF
MODE-5	68.7 kHz	0 V	12 V	0 V	0 V	0.66μF
MODE-6	64.0 kHz	12 V	12 V	0 V	0 V	0.81μF
MODE-7	80.0 kHz	12 V	0 V	0 V	0 V	0.45μF
MODE-8	87.5 kHz	0 V	0V	0 V	0 V	0.30μF

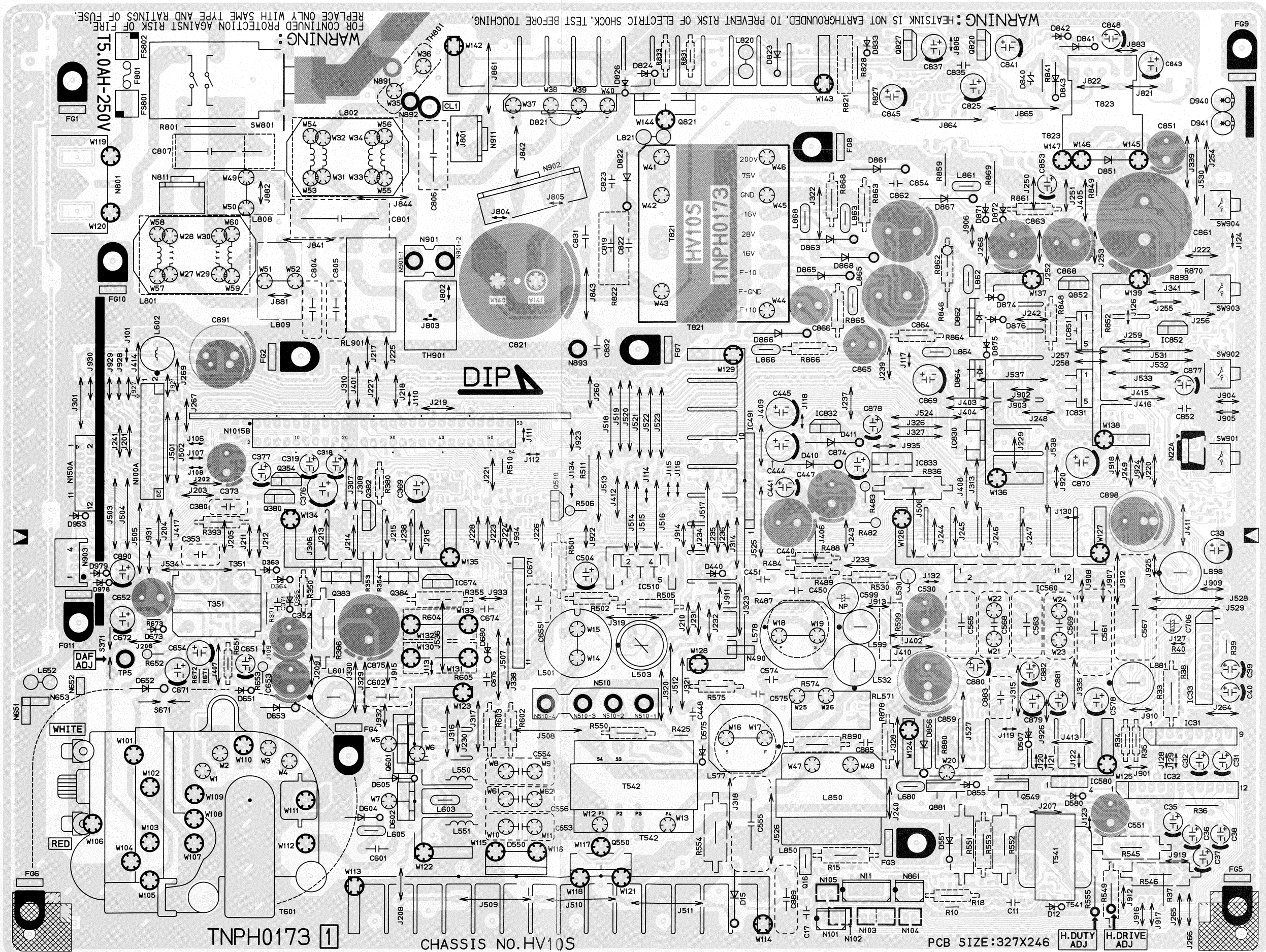






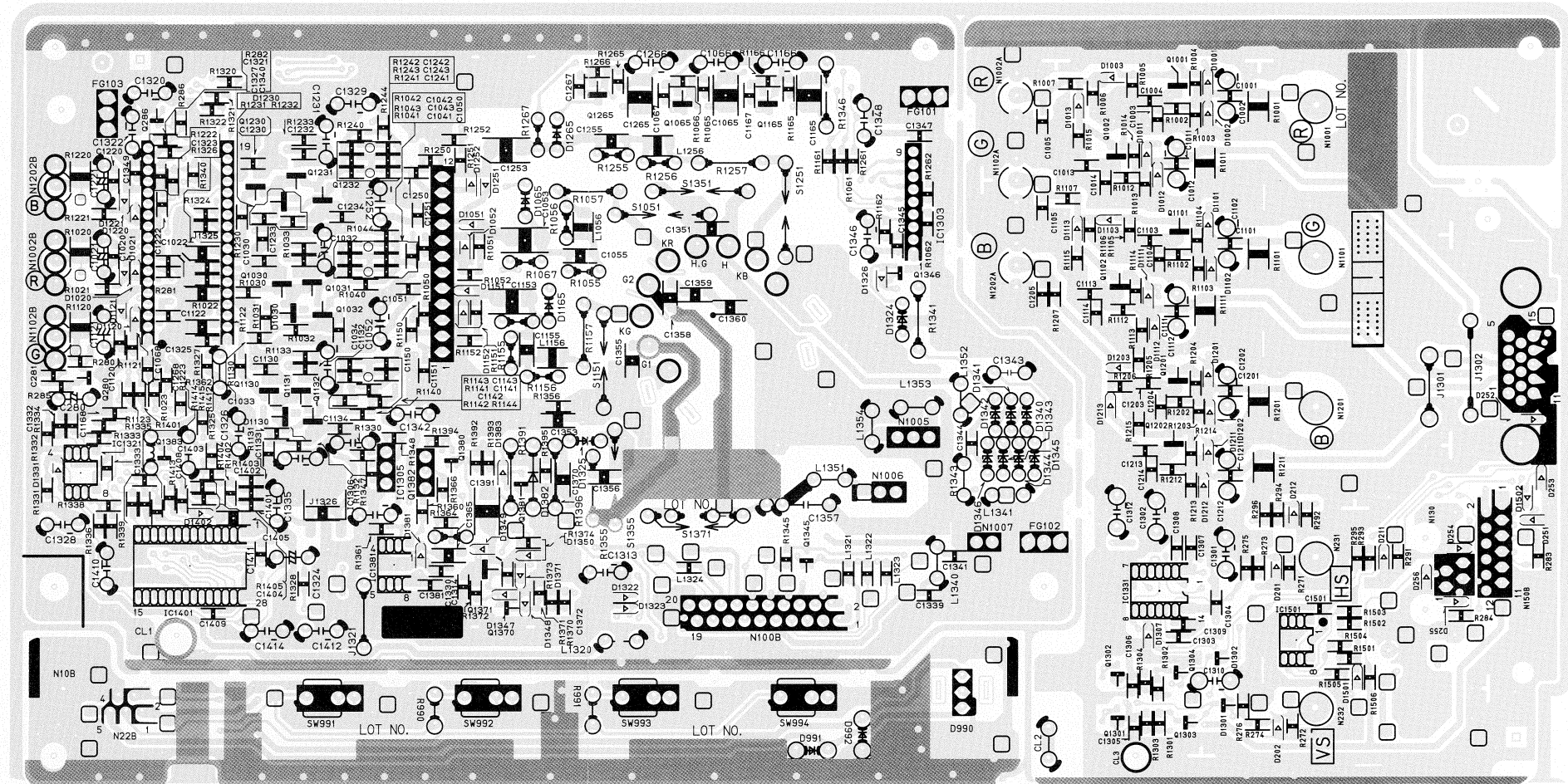


MAIN BOARD (Parts side)

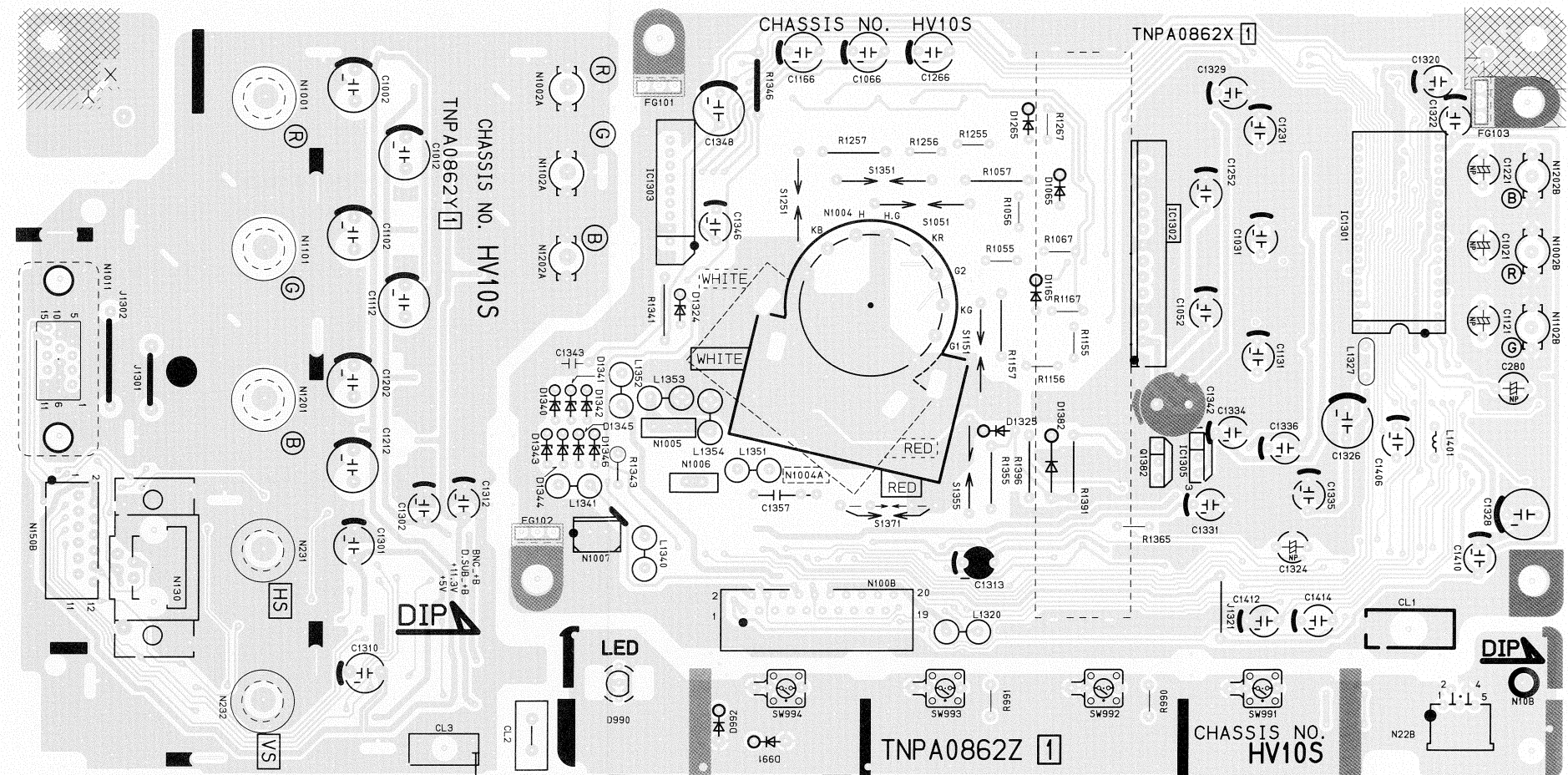




### VIDEO BOARD (Solder side)




### VIDEO BOARD (Parts side)



# SCHEMATIC DIAGRAM










## IMPORTANT SAFETY NOTICE

The component identified by shading or international symbol  on the following schematic diagrams incorporate special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for those critical components.

### NOTES :

#### 1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted by the following marks.  
Unit of resistance is ohm ( $\Omega$ ), (K = 1,000, M = 1,000,000)

- |   |  |
|---|--|
|  : Non Flammable           |  : Solid                                |
|  : Metal Oxide             |  : Metal (Precision and high stability) |
|  : Wire Wound              |  : Thermistor                           |
|  : Fusible                 |  : Positive coefficient Thermistor      |
|  : Flame Proof Rectangular |  |

#### 2. CAPACITOR

All capacitors are ceramic 50V capacitor, unless otherwise noted by the following marks.  
Unit of capacitance is  $\mu\text{F}$ , unless otherwise noted.

- |  |   |
|--|---|
|  : Electrolytic             |  : Polyester           |
|  : Tantalum                 |  : Metalized Polyester |
|  : Bipolar                  |  : Polypropylene       |
|  : Polystyrene              |  : Mica                |
|  : Temperature Compensation |  : Ceramic             |
|  |  : Ceramic (SL)        |

#### 3. COIL

Unit of inductance is  $\mu\text{H}$ , unless otherwise noted.

#### 4. VOLTAGE MEASUREMENT

Voltage is measured by a digital meter receiving normal signal.

- This schematic diagram is the latest at the time of printing and is subject to change without notice.

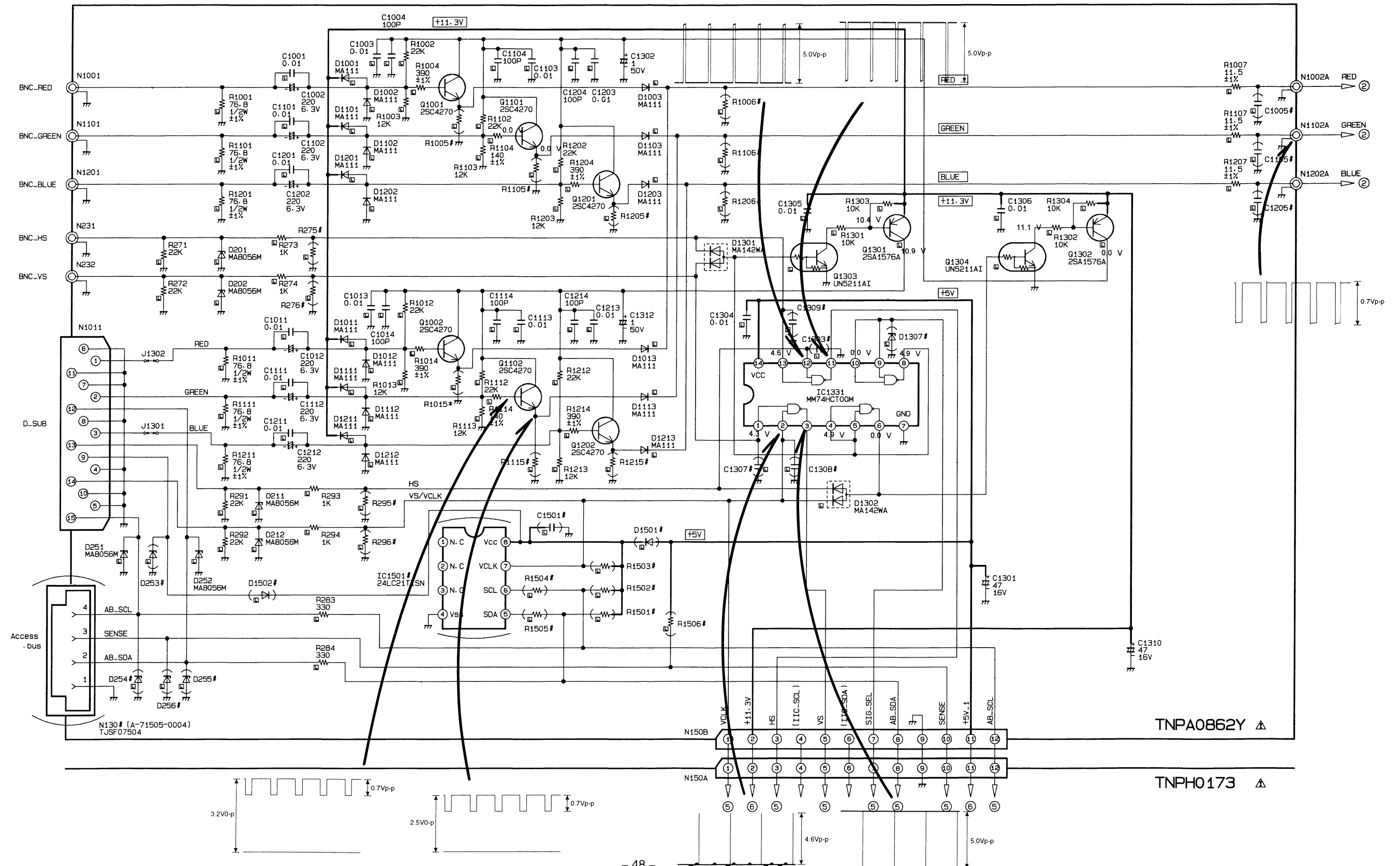
### SERVICE NOTES :

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

- Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
- Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
- Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multi-meters.
- Always unplug the unit before beginning any operation such as removing the chassis.

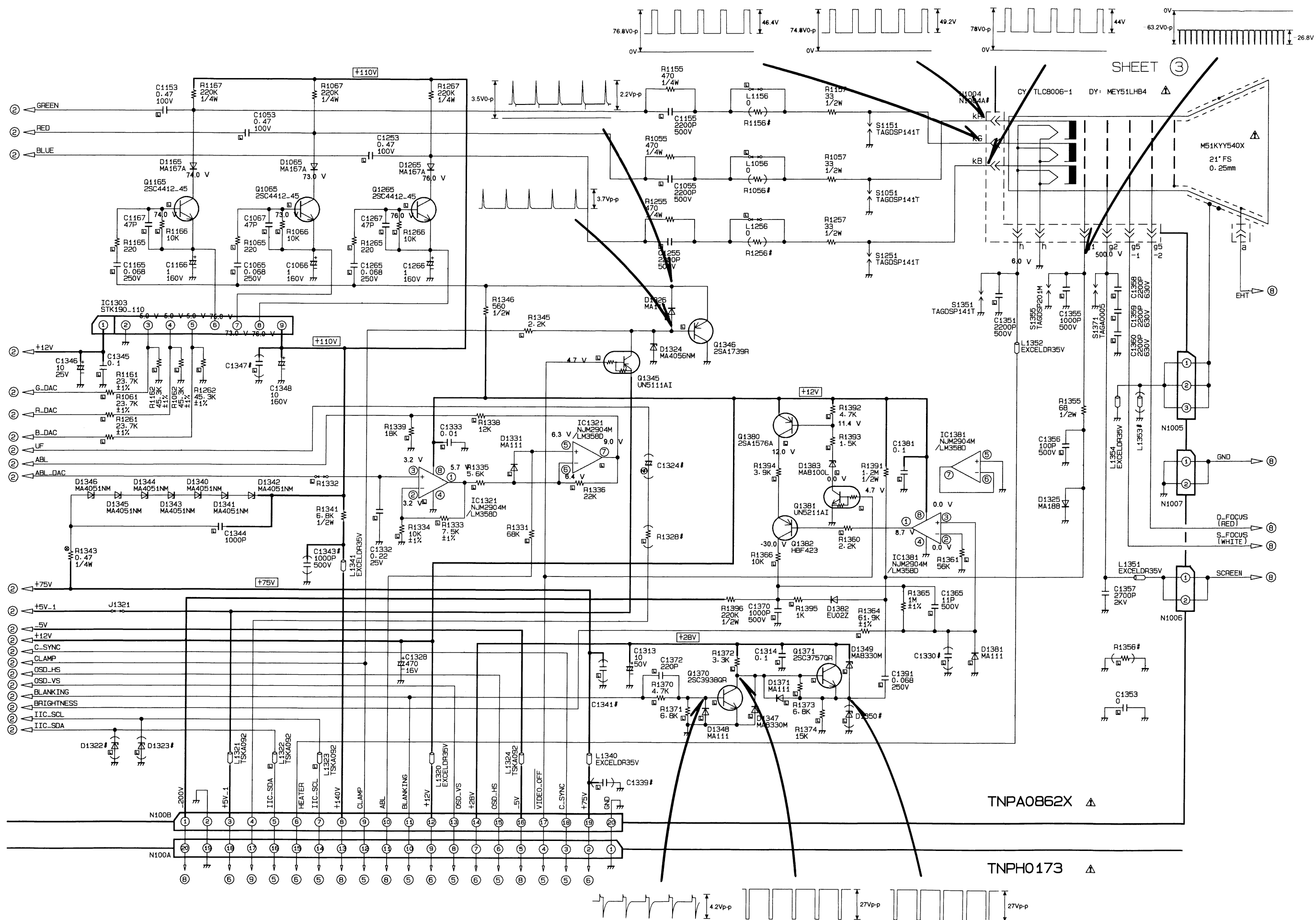
## M-1F63TV

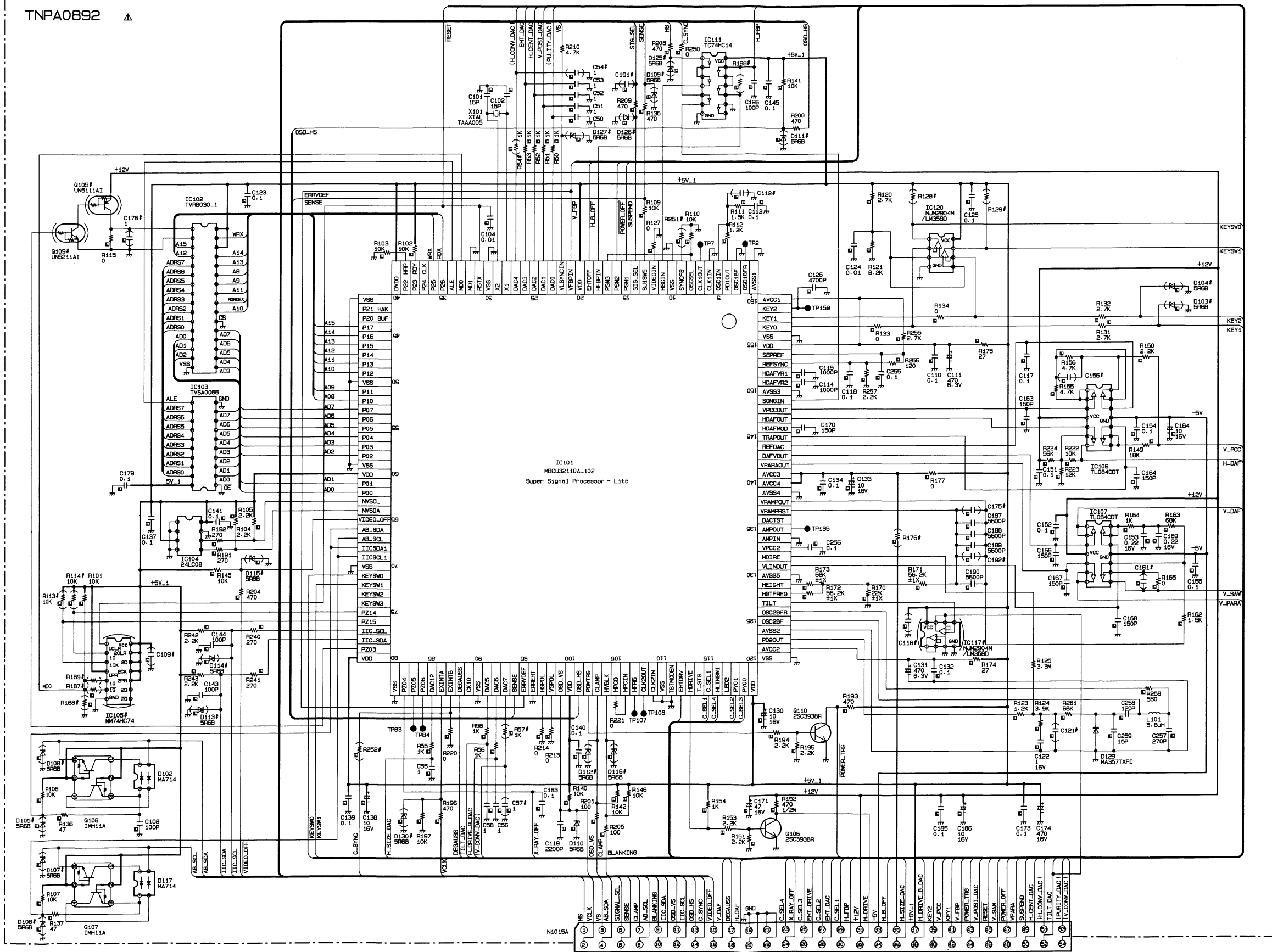
SHEET ①



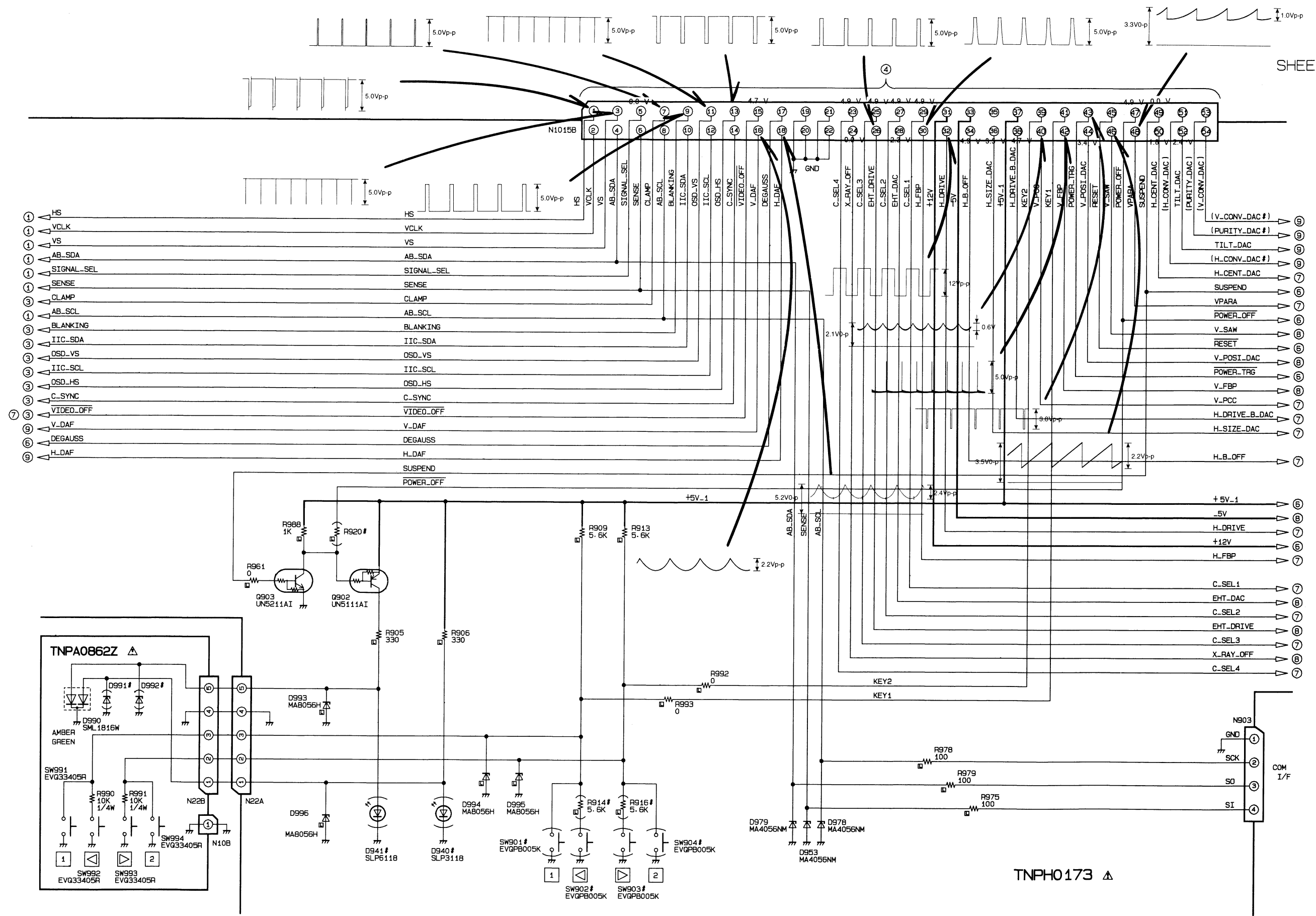


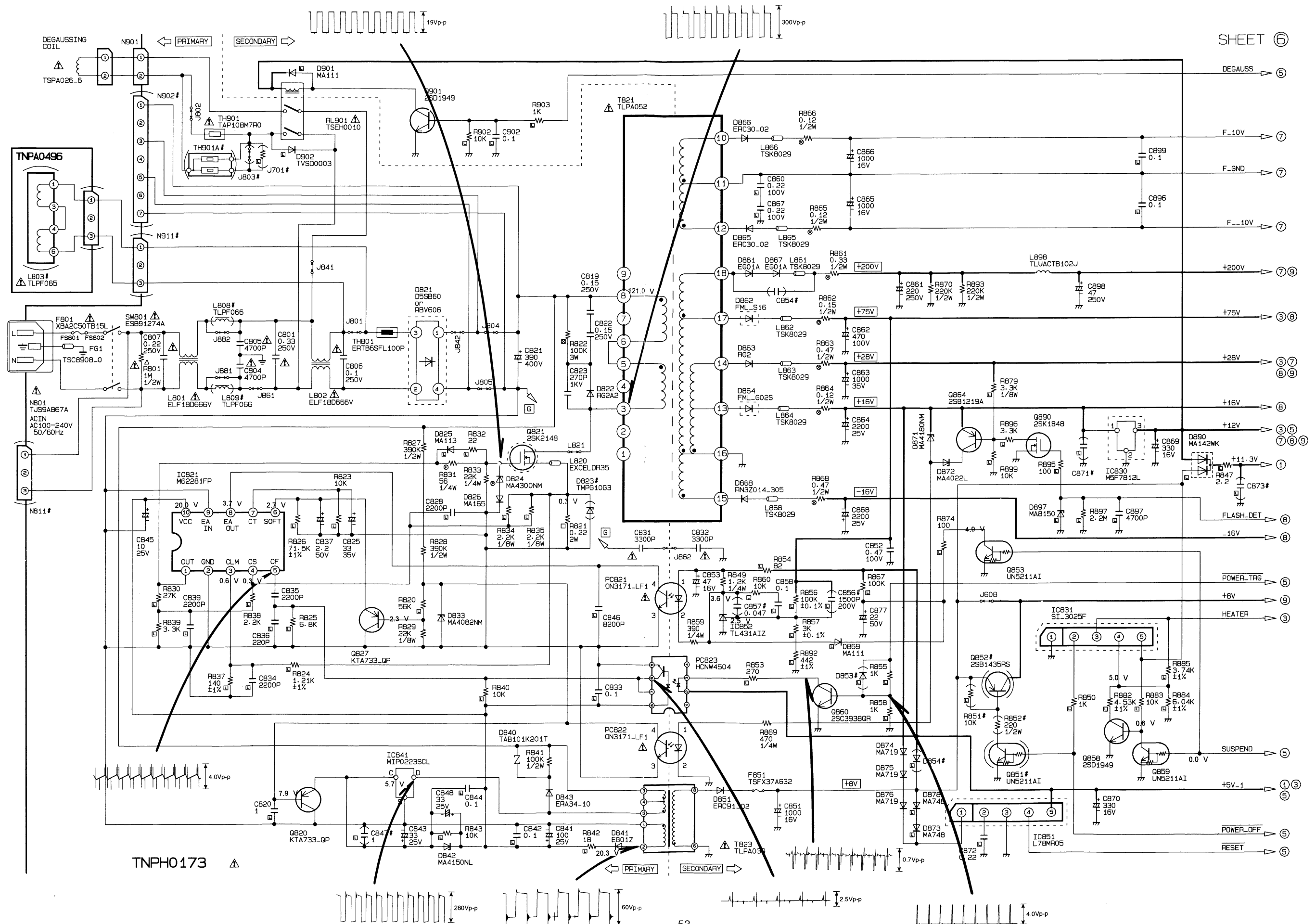


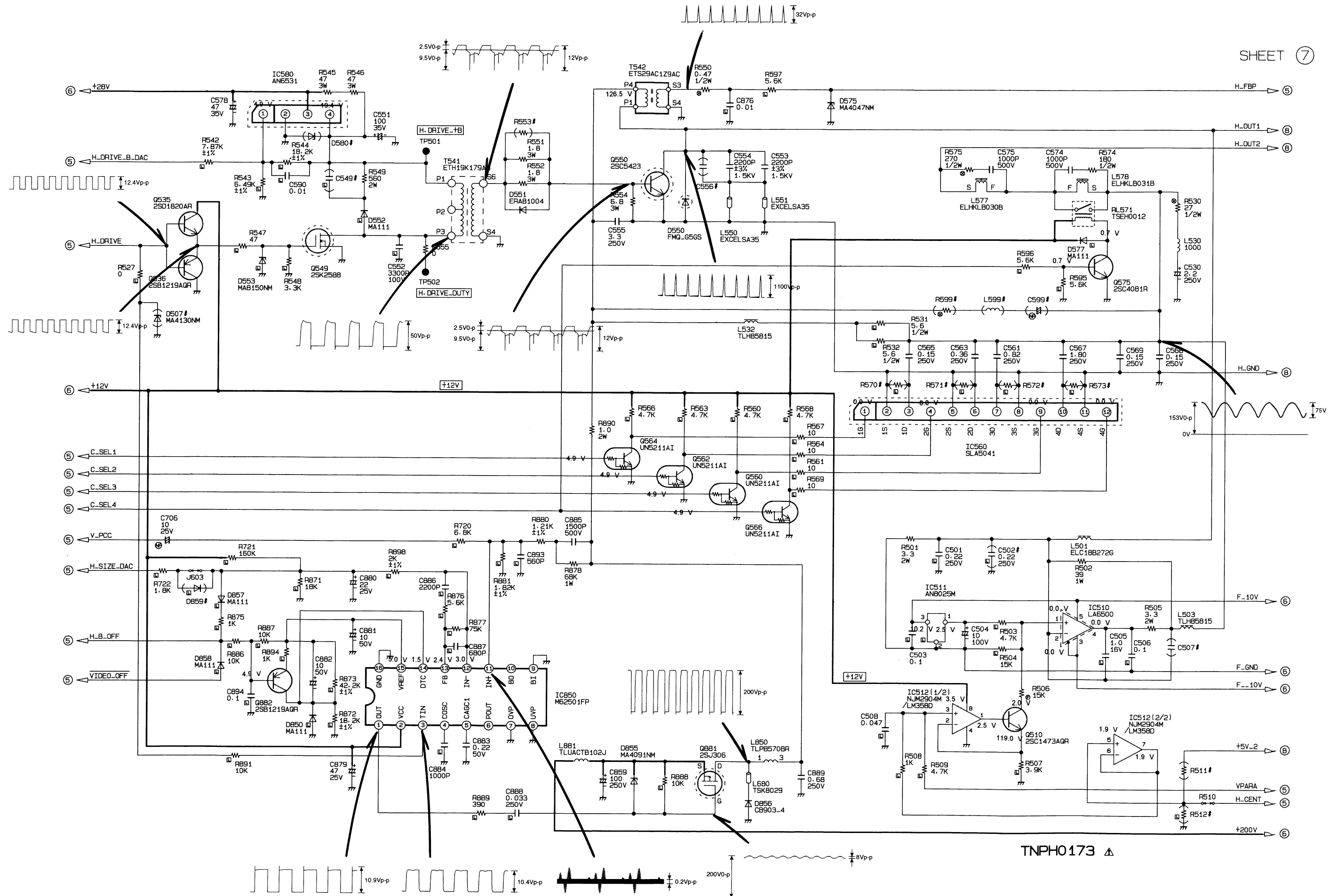


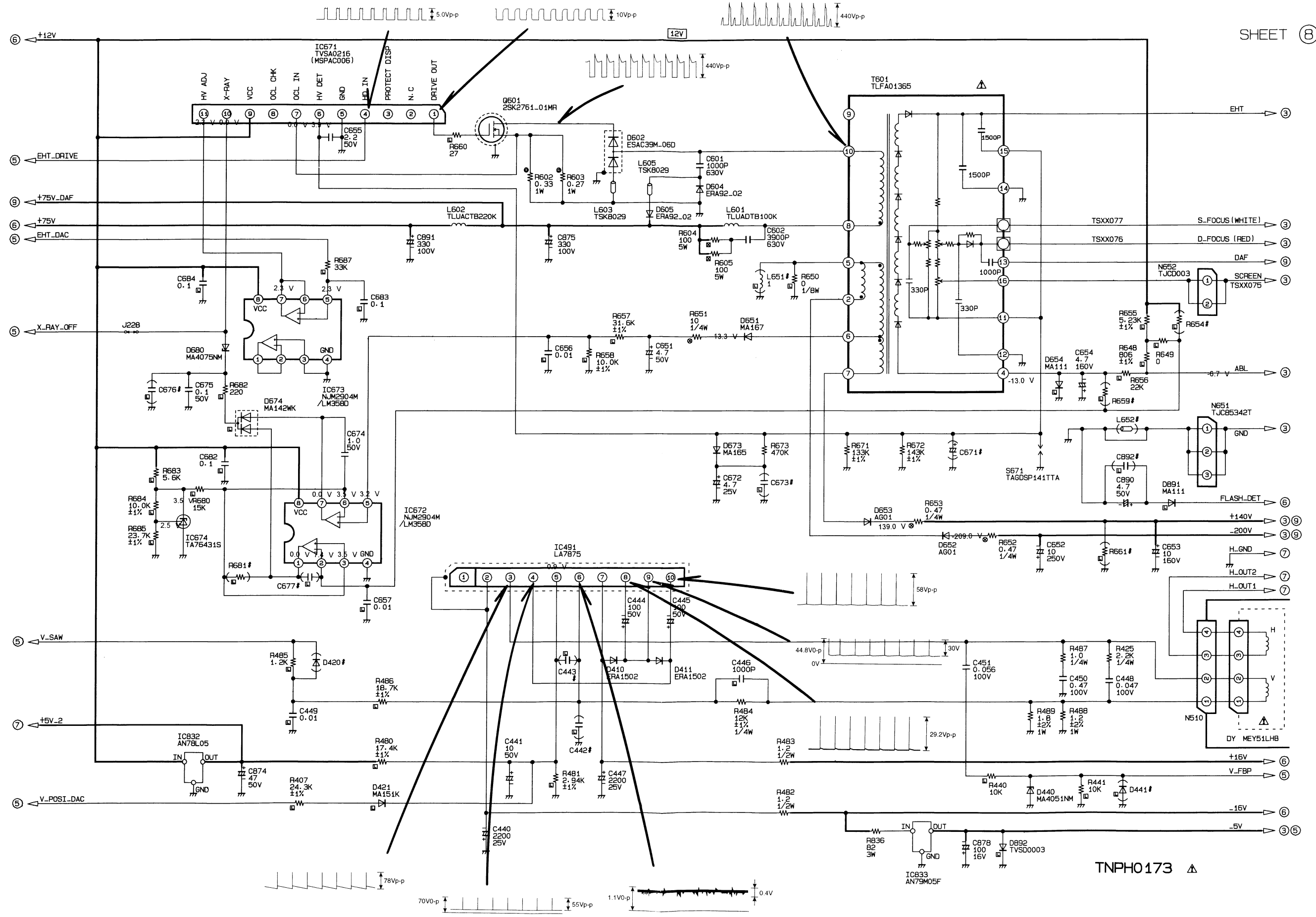


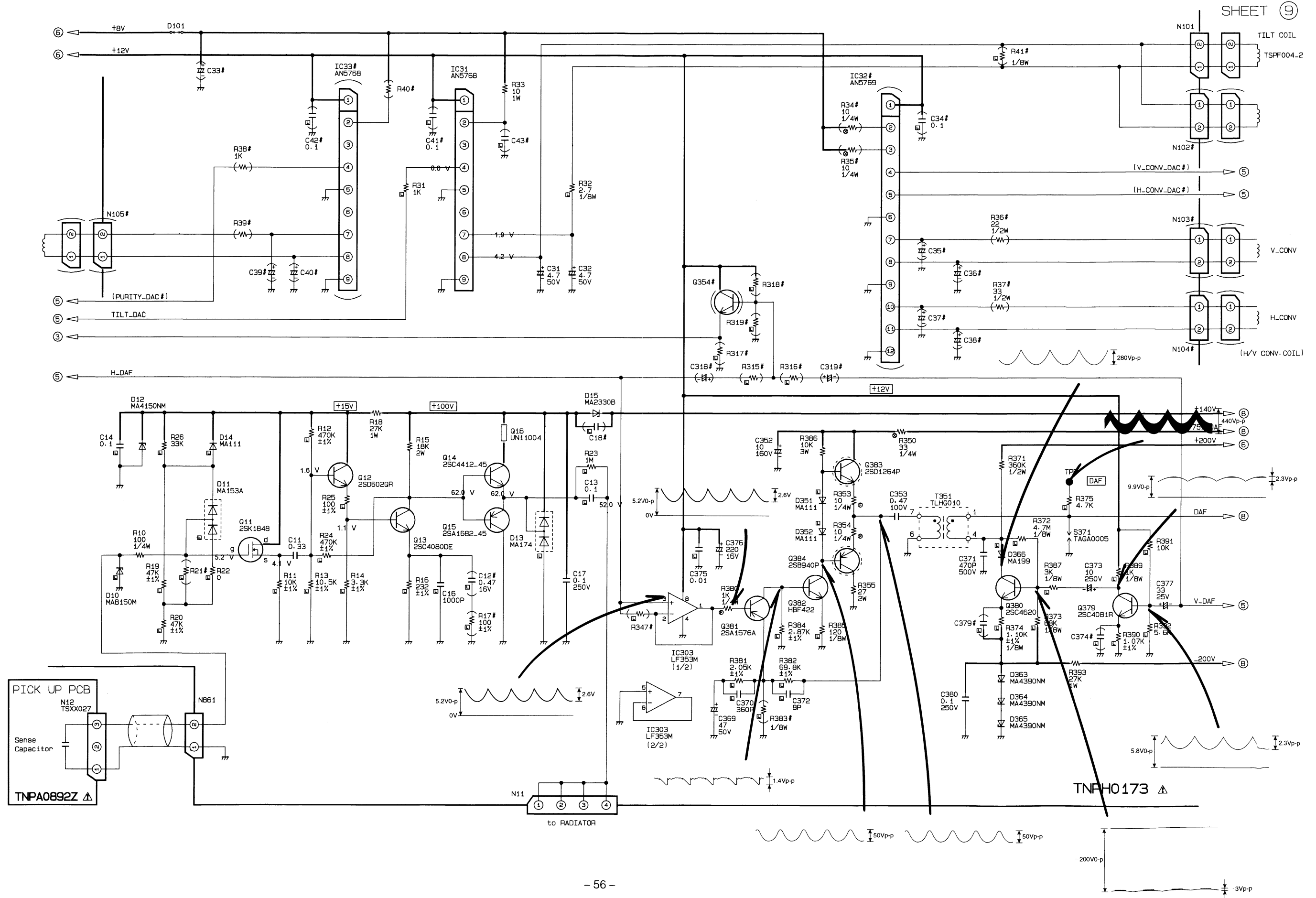




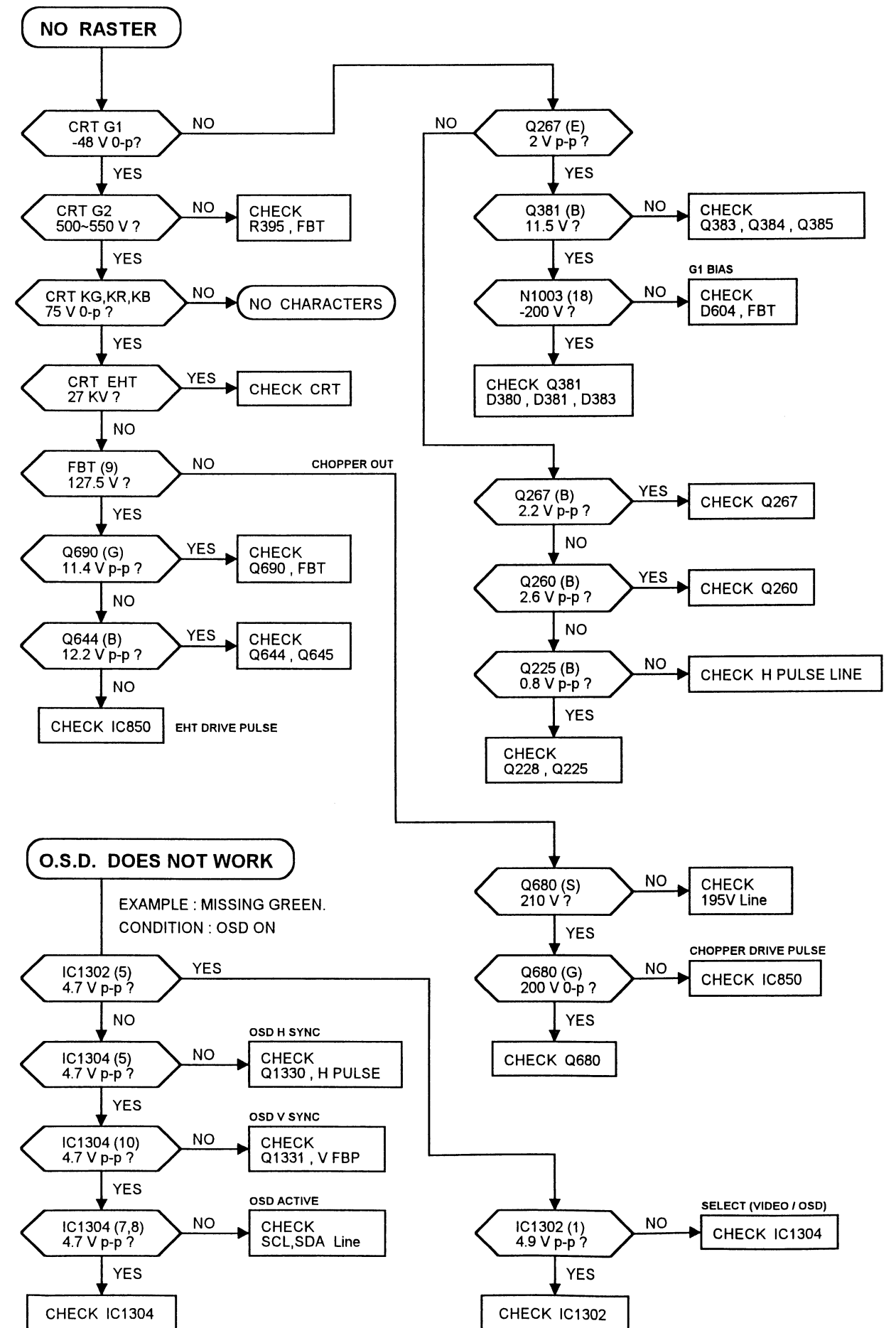
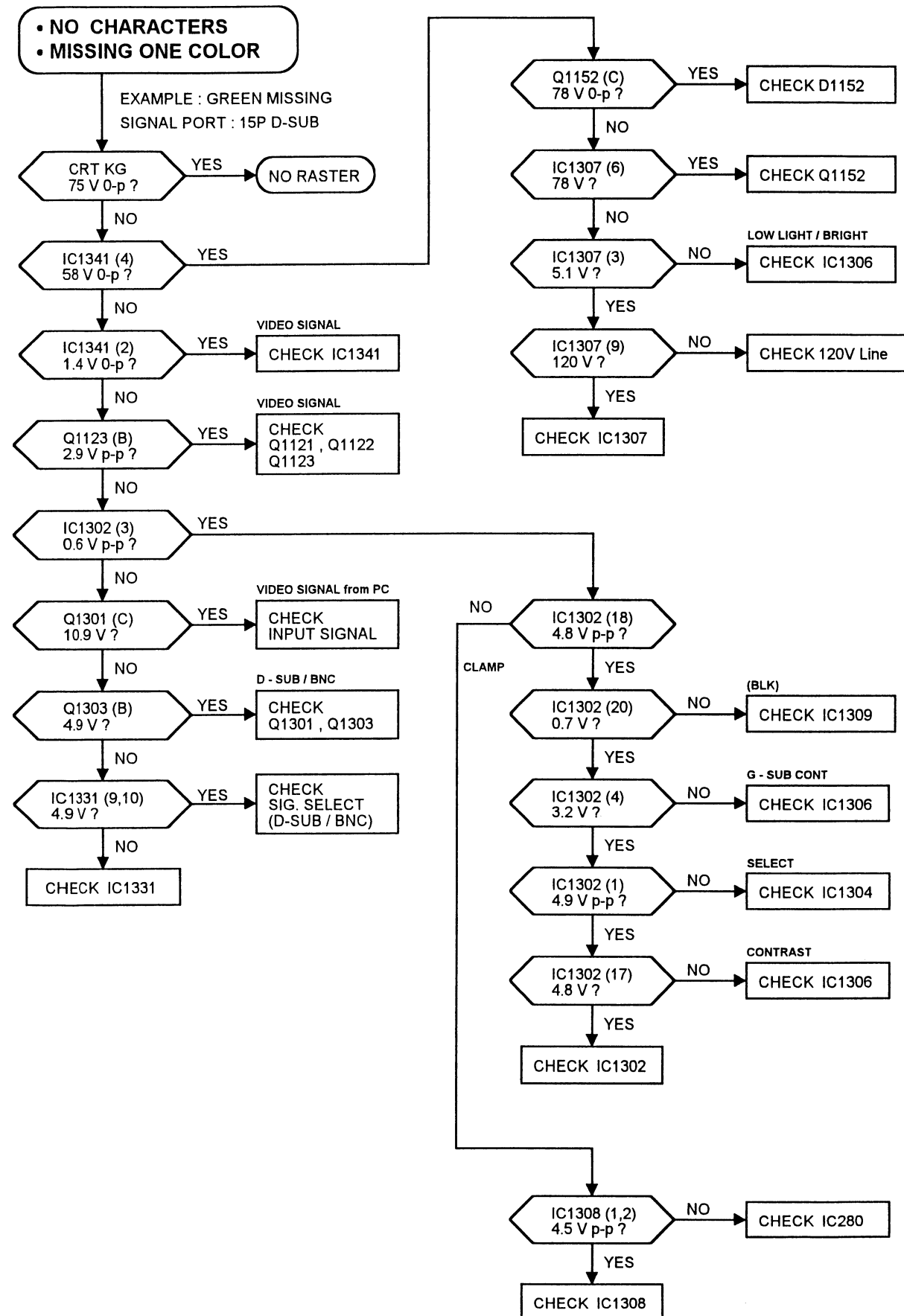


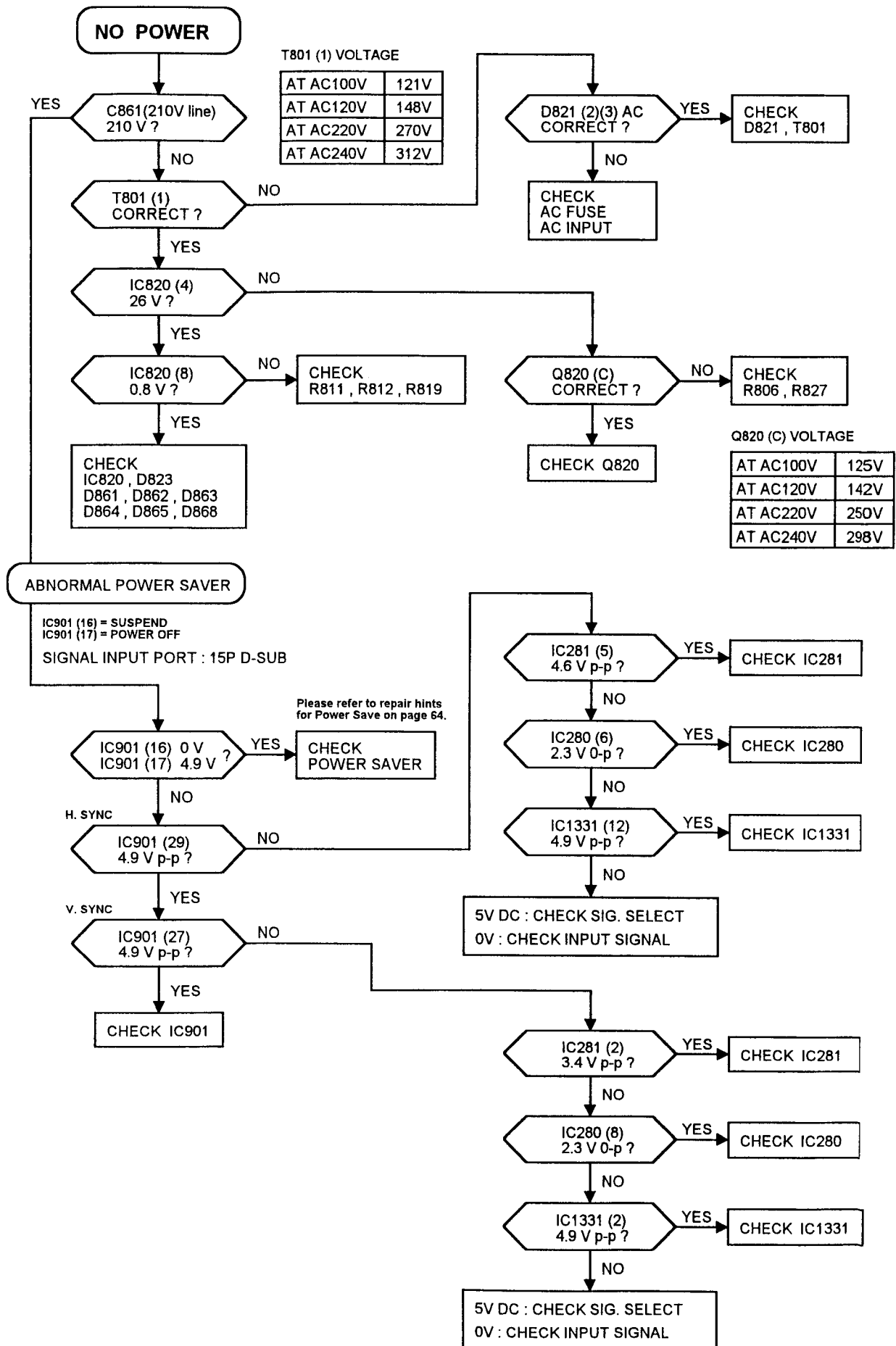






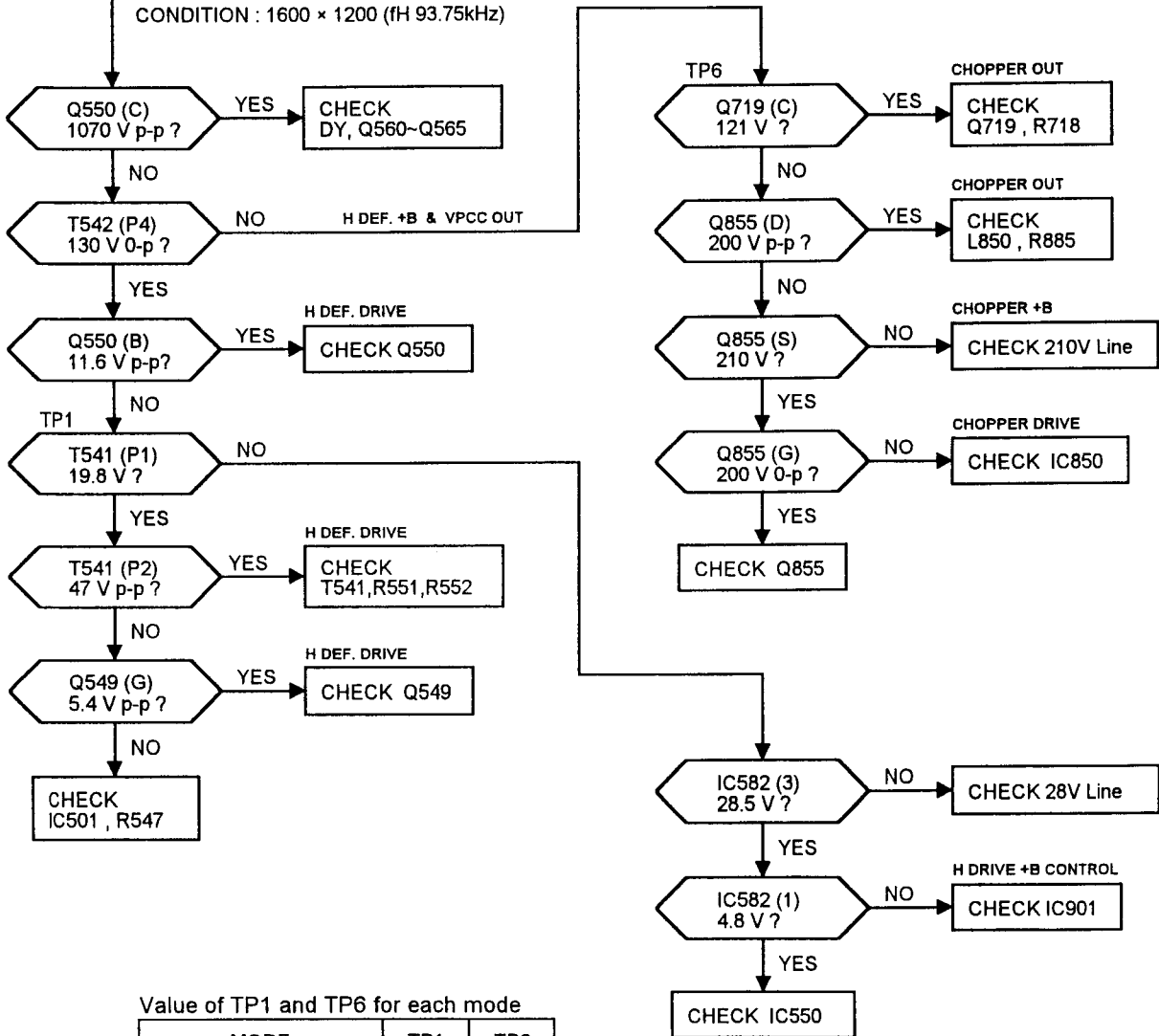
## TROUBLE SHOOTING HINTS





# **DEFECTIVE HORIZONTAL DEFLECTION CIRCUIT**

CONDITION : 1600 × 1200 (fH 93.75kHz)



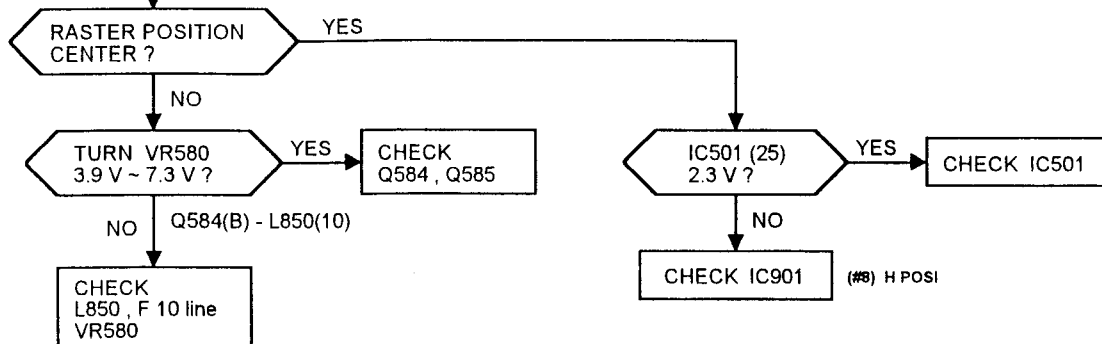
Value of TP1 and TP6 for each mode

MODE	TP1	TP6
MODE - 1 (f H 93.8kHz)	19.8 V	127.5 V
MODE - 2 (f H 31.5kHz)	23.7 V	74.3 V
MODE - 3 (f H 46.9kHz)	23.0 V	53.5 V
MODE - 4 (f H 60.0kHz)	22.3 V	70.8 V
MODE - 5 (f H 68.7kHz)	22.1 V	83.4 V
MODE - 6 (f H 63.3kHz)	22.3 V	75.4 V
MODE - 7 (f H 80.0kHz)	20.8 V	101.3 V
MODE - 8 (f H 87.5kHz)	20.5 V	115.6 V



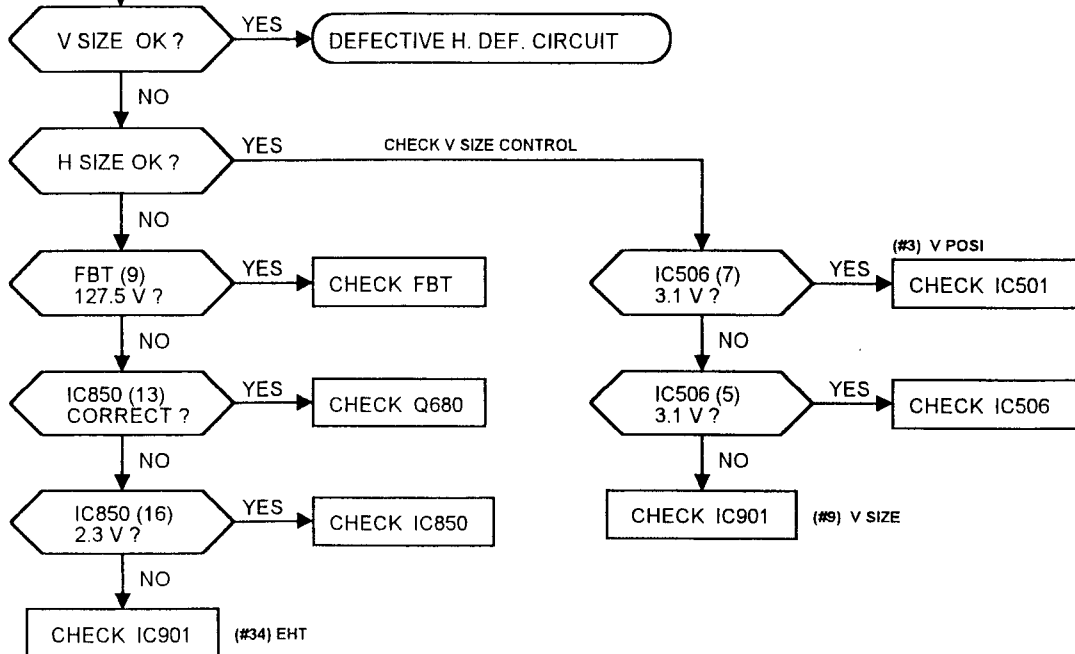
## INCORRECT H. POSITION CONTROL

CONDITION : 1600 × 1200 (fH 93.75kHz)



## INCORRECT SCREEN SIZE

CONDITION : 1600 × 1200 (fH 93.75kHz)

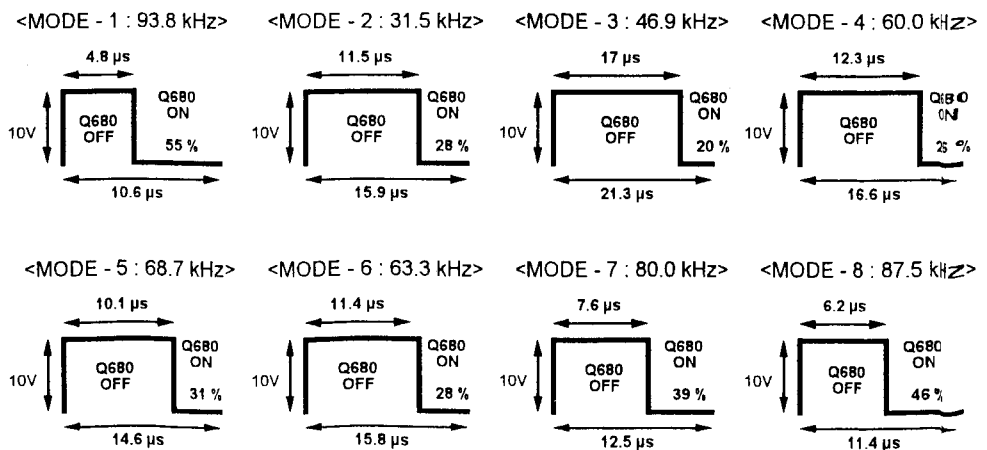


### IC850 (13) Wave

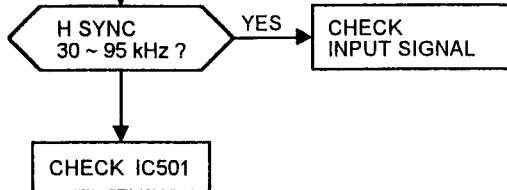
IC850 (20) [ 2FH ]	
30~40 kHz	HIGH
40~95 kHz	LOW

When Low level is applied to 20 pin, IC850 will supply ×2 fH signal to Q680 and Q690.

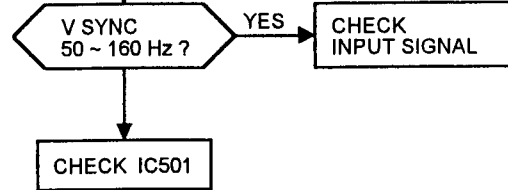
(IC850 13 & 23 pin)



### H. SYNC DOES NOT HOLD



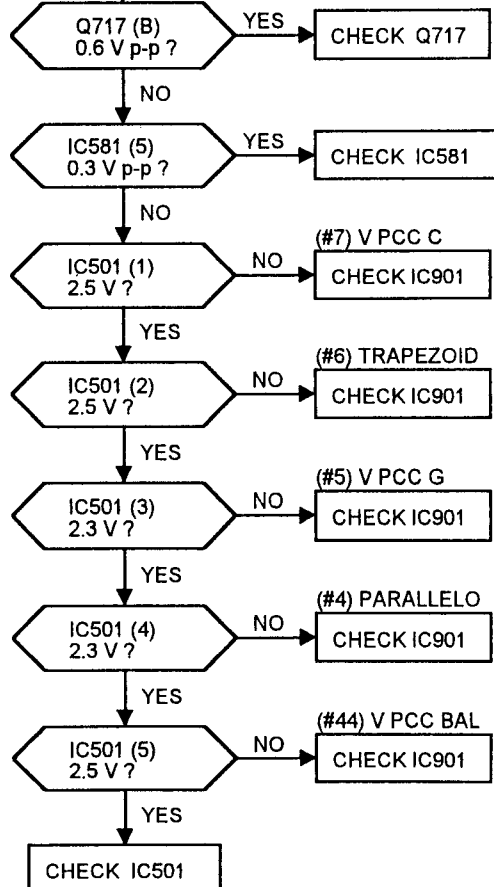
### V. SYNC DOES NOT HOLD



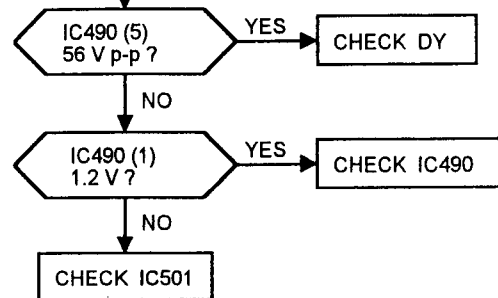
If no horizontal and/or vertical sync from PC,  
then the power save circuit becomes active.

### INCORRECT V.PCC

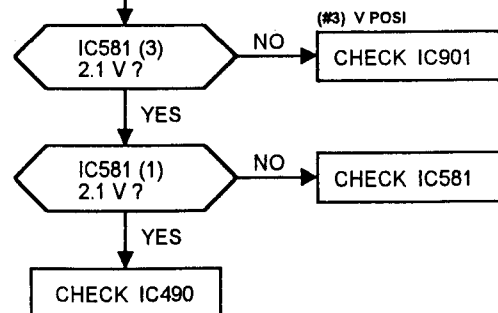
CONDITION : 1600 × 1200 (fH 93.75kHz)



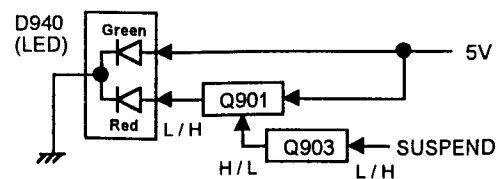
### BRIGHT HORIZONTAL LINE APPEARS ON THE SCREEN



### INCORRECT V. POSITION CONTROL

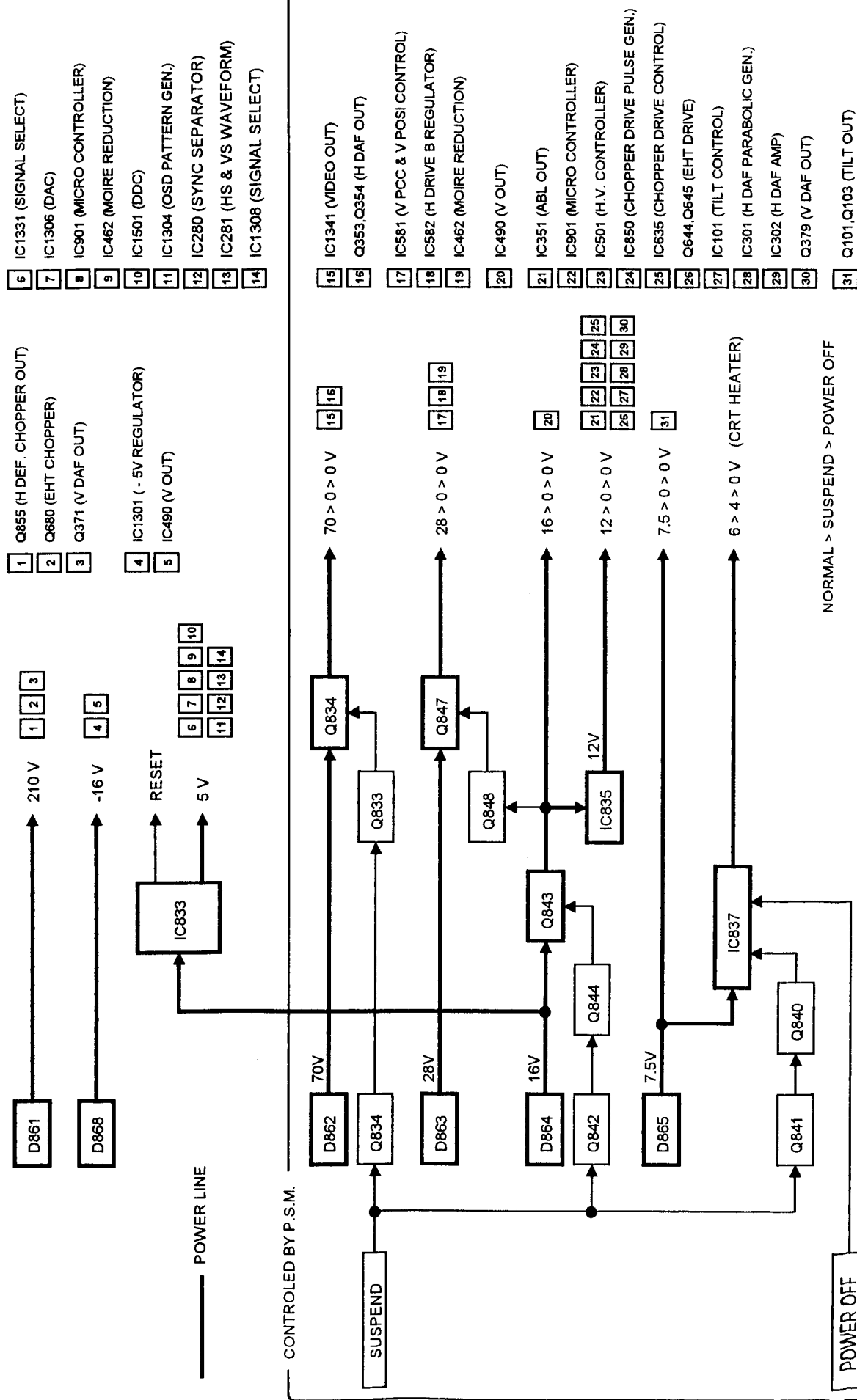


### ABNORMAL POWER INDICATOR



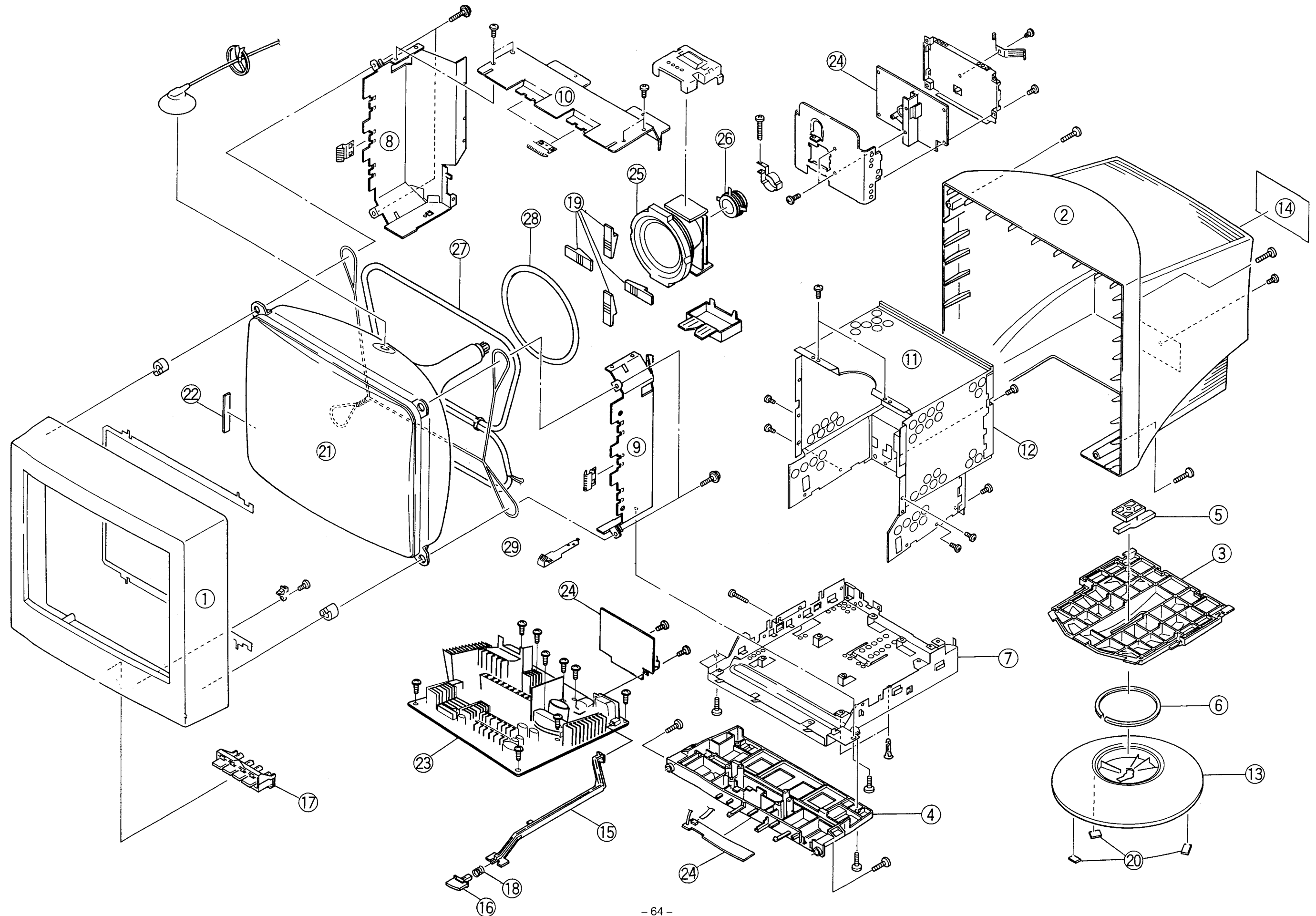
HS	VS	SUSPEND	COLOR
ON	ON	LOW	GREEN
OFF	ON	HIGH	YELLOW
ON	OFF	HIGH	YELLOW
OFF	OFF	HIGH	YELLOW

# REPAIR HINTS FOR POWER SAVE (HV8SA CHASSIS)






# EXPLODED VIEW





# REPLACEMENT PARTS LIST

## Important Safety Notice

Components identified by the International symbol  have special characteristics important for safety. When replacing any of these components use only manufacture's specified parts.



### RESISTOR

































































PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Carbon	F	± 1%
F	Fuse	J	± 5%
M	Metal Oxide	K	± 10%
S	Solid	M	± 20%
W	Wire Wound	G	± 2%

Part No. Description  
Example ERD25TJ104  100K  1/4W

### CAPACITOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	C	± 0.25pF
E	Electrolytic	D	± 0.5pF
P	Polyester	F	± 1pF
S	Styrol	J	± 5%
T	Tantalum	K	± 10%
PP	Polypropylene	L	± 15%
		M	± 20%
		P	+100% - 0%
		Z	+80% - 20%

Part No. Description  
Example ECKF1H103ZF  0.01μF  50V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
		CABINET & MAIN PARTS			
	1	TTYA03201-7 ESCUTCHEON<-M>		14	TBMD162 MODEL NAME LABEL<-SW>
	1	TTYA03206-5 ESCUTCHEON<-E,-G,-SW,-U>		14	TBMD163 MODEL NAME LABEL<-U>
	2	TZTKU0100CQ REAR COVER W/MODEL LABEL <-M>		14	TBMD187 MODEL NAME LABEL<-E>
	2	TZTKU0100DA REAR COVER W/MODEL LABEL <-G>		16	TBXAO3401 KNOB(POWER SWITCH)
	2	TZTKU0100DB REAR COVER W/MODEL LABEL <-SW>		15	TBXAO4401 POWER SWITCH SHAFT
	2	TZTKU0100DC REAR COVER W/MODEL LABEL <-U>		17	TBXA14101 KNOB(CONTROL)
	2	TZTKU0100DF REAR COVER W/MODEL LABEL <-E>			TESAO12 SPRING(CRT EARTH)
		TKGF5024 LED LENS			TESAO46 SPRING(CRT EARTH,BOTTOM)
	3	TKSG001-A01 BOTTOM CABINET<-M>		18	TESDO08 SPRING(POWER SWITCH)
	3	TKSG001-A06 BOTTOM CABINET <-E,-G,-SW,-U>			TESHO17 FBT SPRING
	4	TKSG004-B01 BASE CABINET<-M>			TES8586 EARTH SPRING
	4	TKSG004-B02 BASE CABINET <-E,-G,-SW,-U>			TMME023 TILT COIL CLAMPER(BIG)
	5	TKKX5010 CENTER POST<-M>			TMME035 DEGAUSS COIL CLAMPER, SIDE
	5	TKKX5010-1 CENTER POST<-E,-G,-SW,-U>			TMME052 LEAD CLAMPER(SMALL)
	6	TKKX5011-1 SPACER RING			TMME067 DEGAUSS COIL CLAMPER
	7	TKK859745-9 CONNECTOR COVER			TMM15404-1 SPACER RING
	7	TUAA06401-1 BOTTOM PLATE			TMM16452 TILT COIL CLAMPER
		TSAA3004 RADIATOR			TMM6463 CLAMPER
	8	TUCC5083-1 SHIELD CASE(CRT)R			TMM81499 PUSH RIVET
	9	TUCC5084-1 SHIELD CASE(CRT)L			TMM85576-1 CRT RUBBER
	10	TUCC5085-1 SHIELD CASE BRACKET		19	TMM85586 RUBBER(WEDGE)
	11	TUCC5115 SHIELD CASE			TMX13418 PCB SPACER
	12	TUCC5116-2 SHIELD CASE(REAR)			TMKG035 SPONGE
	13	TBLB3002-A01 PEDESTAL<-M>			TMKG067 RUBBER CUSHION(BIG)
	13	TBLB3002-A06 PEDESTAL<-E,-G,-SW,-U>		20	TMK84990 SET LEG
	14	TBMD061 MODEL NAME LABEL<-M>			TMK85572 FERRITE STICK
	14	TBMD161 MODEL NAME LABEL<-G>			TQFX040 CONDUCTIVE SHEET
					THT1028 SCREW(FOR CRT)
					THT1069 SCREW(FOR SHIELD CASE)
					XTB4+12J SCREW
					XTN5+16LY SCREW
					XTV3+10A SCREW
					XTV3+20J SCREW
					XTV3+8A SCREW
					XYA4+EF8 SCREW
					XYA4+EJ10 SCREW
					XYE3+EJ10 SCREW

	Ref.No.	Part No.	Description		Ref.No.	Part No.	Description
△		21	M51KYY540X TNPA0892-21		IC103	TVSA0066	IC
					IC104	24LC08BTISN	IC
					IC106	LF347MX	IC
△		23	TNPH0173-21		IC107	LF347MX	IC
					IC111	TC74HC14AF	IC
		24	TXANP31F63NM		IC120	NJM2904M	IC
					IC303	LF353MX	IC
△		25	MEY51LHB4		IC491	LA7875	IC
△		26	TLCB006-1		IC510	LA6500-FA	IC
△		27	TSPA026-6		IC511	AN8025M	IC
		28	TSPF004-2		IC512	NJM2904M	IC
			TSXLO30		IC580	AN6531	IC
△			TSXLO55		IC671	TVSA0216	HYBRID IC
△			TSXX075		IC672	NJM2904M	IC
△			TSXX076		IC673	NJM2904M	IC
△			TSXX077		IC674	TA76431S	IC
			TSX4515-3		IC821	M62281FP	IC
△			TSXA023		IC830	M5F7812L	IC
△			TSX8484		IC831	SI-3025F	HYBRID IC
△			TSX8492		IC832	AN78L05	IC
△			TSX8493		IC833	AN79M05F	IC
△			TSXX053		IC841	MIP0223SCL	IC
△			TXA3A11F63NM		IC850	M62501FP	IC
			TSMA003		IC851	L78MR05	IC
			T4F31519Q		IC852	TL431AIZ	IC
			T4F72425Q		IC1301	M52741SP700	IC
			T4F90240	△	IC1302	VP3628	HYBRID IC
			TPCA54001		IC1303	STK190-110	HYBRID IC
			TPCA58901		IC1305	TA76431S	IC
					IC1306	L78M09T	IC
			TXAPD1D1F63T		IC1321	NJM2904M	IC
			TXAPD1D2162T		IC1331	MM74HCT00MX	IC
			TXAPD3D2162B		IC1381	NJM2904M	IC
			TPE894011-2		IC1401	LSC4385DW2	IC
			TQE8513-2			TRANSISTORS	
			TQE8660		IC560	SLA5041	TRANSISTOR
			TQBE0151		Q11	2SK1848	TRANSISTOR
					Q12	2SD602R	TRANSISTOR
△			TQBE0198		Q13	2SC4080DET	TRANSISTOR
△			TQBE0225		Q14	2SC4412-45	TRANSISTOR

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q566	UN5211AI	TRANSISTOR	D212	MA8056M	DIODE
Q575	2SC4081R	TRANSISTOR	D251	MA8056M	DIODE
Q601	2SK2761-01MR	TRANSISTOR	D252	MA8056M	DIODE
Q820	2SA733Q	TRANSISTOR	D351	MA111	DIODE
Q821	2SK2148	TRANSISTOR	D352	MA111	DIODE
Q827	2SA733Q	TRANSISTOR	D363	MA4390NM	DIODE
Q853	UN5211AI	TRANSISTOR	D364	MA4390NM	DIODE
Q858	2SD1949Q	TRANSISTOR	D365	MA4390NM	DIODE
Q859	UN5211AI	TRANSISTOR	D366	MA199	DIODE
Q860	2SC3938R	TRANSISTOR	D410	ERA1502	DIODE
Q864	2SB1219AQ	TRANSISTOR	D411	ERA1502	DIODE
Q881	2SJ306MRB	TRANSISTOR	D421	MA151K	DIODE
Q882	2SB1219AQ	TRANSISTOR	D440	MA4051NM	DIODE
Q890	2SK1848	TRANSISTOR	D550	FMQ-G5GSLF	DIODE
Q901	2SD1949Q	TRANSISTOR	D551	ERA81004	DIODE
Q902	UN5111AI	TRANSISTOR	D552	MA111	DIODE
Q903	UN5211AI	TRANSISTOR	D553	MA8150M	DIODE
Q1001	2SC4270	TRANSISTOR	D575	MA4047NM	DIODE
Q1002	2SC4270	TRANSISTOR	D577	MA111	DIODE
Q1030	2SC4270	TRANSISTOR	D602	ESAC39M-06D	DIODE
Q1031	2SC4270	TRANSISTOR	D604	ERA92-02	DIODE
Q1032	2SA1764	TRANSISTOR	D605	ERA92-02	DIODE
Q1065	2SC4412-45	TRANSISTOR	D651	MA167	DIODE
Q1101	2SC4270	TRANSISTOR	D652	TVSAG01	DIODE
Q1102	2SC4270	TRANSISTOR	D653	TVSAG01	DIODE
Q1130	2SC4270	TRANSISTOR	D654	MA111	DIODE
Q1131	2SC4270	TRANSISTOR	D673	MA165	DIODE
Q1132	2SA1764	TRANSISTOR	D674	MA142WK	DIODE
Q1165	2SC4412-45	TRANSISTOR	D680	MA4075NM	DIODE
Q1201	2SC4270	TRANSISTOR	D821	RBV606	DIODE
Q1202	2SC4270	TRANSISTOR	D822	RG2A2	DIODE
Q1230	2SC4270	TRANSISTOR	D824	MA4300NM	DIODE
Q1231	2SC4270	TRANSISTOR	D825	MA113	DIODE
Q1232	2SA1764	TRANSISTOR	D826	MA165	DIODE
Q1265	2SC4412-45	TRANSISTOR	D833	MA4082NM	DIODE
Q1301	2SA1576A	TRANSISTOR	D840	TAB101K201T	VARISTOR
Q1302	2SA1576A	TRANSISTOR	D841	EGO1Z	DIODE
Q1303	UN5211AI	TRANSISTOR	D842	MA4150NL	DIODE
Q1304	UN5211AI	TRANSISTOR	D843	ERA34-10	DIODE
Q1345	UN5111AI	TRANSISTOR	D850	MA111	DIODE
Q1346	2SA1739R	TRANSISTOR	D851	ERC91-02	DIODE
Q1370	2SC3938R	TRANSISTOR	D855	MA4091NM	DIODE
Q1371	2SC3757Q	TRANSISTOR	D856	CB903-4	DIODE
Q1380	2SA1576A	TRANSISTOR	D857	MA111	DIODE
Q1381	UN5211AI	TRANSISTOR	D858	MA111	DIODE
Q1382	2SA1767Q	TRANSISTOR	D861	EGO1A	DIODE
Q1383	2SD1819AQ	TRANSISTOR	D862	FML-S16S	DIODE
	DIODES		D863	TVSRG2	DIODE
D10	MA8150M	DIODE	D864	FML-G02S	DIODE
D11	MA153A	DIODE	D865	ERC30-02	DIODE
D12	MA4150NM	DIODE	D866	ERC30-02	DIODE
D13	MA174	DIODE	D867	EGO1A	DIODE
D14	MA111	DIODE	D868	RN3Z014-305	DIODE
D15	MA2330B	DIODE	D869	MA111	DIODE
D102	MA714	DIODE	D871	MA4180NM	DIODE
D110	DTZTT115R6B	DIODE	D872	MA4022L	DIODE
D117	MA714	DIODE	D873	MA748	DIODE
D129	MA357	DIODE	D874	MA719	DIODE
D201	MA8056M	DIODE	D875	MA719	DIODE
D202	MA8056M	DIODE	D876	MA719	DIODE
D211	MA8056M	DIODE	D878	MA748	DIODE
			D890	MA142WK	DIODE

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
D891	MA111	DIODE	D1347	MA8330M	DIODE
D892	TVSD0003	DIODE	D1348	MA111	DIODE
D897	MA8150M	DIODE	D1349	MA8330M	DIODE
D901	MA111	DIODE	D1371	MA111	DIODE
D902	TVSD0003	DIODE	D1381	MA111	DIODE
D953	MA4056NM	DIODE	D1382	EU02Z	DIODE
D978	MA4056NM	DIODE	D1383	MA8100L	DIODE
D979	MA4056NM	DIODE		COIL & TRANSFORMERS	
D990	SML1816W	DIODE(LED)			
D993	MA8056H	DIODE			
D994	MA8056H	DIODE	L101	ELJFA5R6JB	CHIP COIL
D995	MA8056H	DIODE	△ L501	ELC18B272G	CHOKO COIL
D996	MA8056H	DIODE	L503	TLH85815T	COIL
D1001	MA111	DIODE	L530	ELEY102KA	PEAKING COIL
D1002	MA111	DIODE	L532	TLH85815T	COIL
D1003	MA111	DIODE	L550	EXCELSA35T	LC COMBINATION
D1011	MA111	DIODE	L551	EXCELSA35T	LC COMBINATION
D1012	MA111	DIODE	△ L577	ELHKLBO30B	COIL
D1013	MA111	DIODE	△ L578	ELHKLBO31B	COIL
D1020	MA111	DIODE	L601	TLUADTB100K	PEAKING COIL
D1021	MA111	DIODE	L602	TLUACNB220K	PEAKING COIL
D1030	DCC010	DIODE	L603	TSK8029	FERRITE CORE
D1051	MA2Z001	DIODE	L605	TSK8029	FERRITE CORE
D1052	MA2Z001	DIODE	L680	TSK8029	FERRITE CORE
D1065	MA167A	DIODE	△ L801	ELF18D666V	LINE FILTER
D1101	MA111	DIODE	△ L802	ELF18D666V	LINE FILTER
D1102	MA111	DIODE	L820	EXCELD35C	LC COMBINATION
D1103	MA111	DIODE	△ L850	TLP85708R	CHOKO COIL
D1111	MA111	DIODE	L861	TSK8029	FERRITE CORE
D1112	MA111	DIODE	L862	TSK8029	FERRITE CORE
D1113	MA111	DIODE	L863	TSK8029	FERRITE CORE
D1120	MA111	DIODE	L864	TSK8029	FERRITE CORE
D1121	MA111	DIODE	L865	TSK8029	FERRITE CORE
D1130	DCC010	DIODE	L866	TSK8029	FERRITE CORE
D1151	MA2Z001	DIODE	L868	TSK8029	FERRITE CORE
D1152	MA2Z001	DIODE	L881	TLUACNB102J	PEAKING COIL
D1165	MA167A	DIODE	L898	TLUACNB102J	PEAKING COIL
D1201	MA111	DIODE	L1320	EXCELD35C	LC COMBINATION
D1202	MA111	DIODE	L1321	TSKA092	FERRITE CORE
D1203	MA111	DIODE	L1322	TSKA092	FERRITE CORE
D1211	MA111	DIODE	L1323	TSKA092	FERRITE CORE
D1212	MA111	DIODE	L1324	TSKA092	FERRITE CORE
D1213	MA111	DIODE	L1327	ELESN221KA	PEAKING COIL
D1220	MA111	DIODE	L1340	EXCELD35C	LC COMBINATION
D1221	MA111	DIODE	L1341	EXCELD35C	LC COMBINATION
D1230	DCC010	DIODE	L1351	EXCELD35C	LC COMBINATION
D1251	MA2Z001	DIODE	L1352	EXCELD35C	LC COMBINATION
D1252	MA2Z001	DIODE	L1354	EXCELD35C	LC COMBINATION
D1265	MA167A	DIODE	L1401	ELEXH151KA	PEAKING COIL
D1301	MA142WA	DIODE	△ T351	TLHGO10	D.A.F. TRANSFORMER
D1302	MA142WA	DIODE	△ T541	ETH19K179AM	H.DRIVE TRANSFORMER
D1324	MA4056NM	DIODE	△ T542	ETS29AC1Z9AC	TRANSFORMER
D1325	MA188	DIODE	△ T601	TLFA01365	FLYBACK TRANSFORMER
D1326	MA111	DIODE	△ T821	TLPA052	POWER TRANSFORMER
D1331	MA111	DIODE	△ T823	TLPA039	POWER TRANSFORMER(SUB)
D1340	MA4051NM	DIODE		CAPACITORS	
D1341	MA4051NM	DIODE	C11	ECQV1H334JL	P 0.33UF J 50V
D1342	MA4051NM	DIODE	C13	ECJ2VF1H104Z	C 0.1UF Z 50V
D1343	MA4051NM	DIODE	C14	ECJ2VF1H104Z	C 0.1UF Z 50V
D1344	MA4051NM	DIODE	C16	ECUX1H102JCX	C 1000PF J 50V
D1345	MA4051NM	DIODE	C17	ECQE2104KF	P 0.1UF K 200V
D1346	MA4051NM	DIODE			



Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
C31	ECEA1HGE4R7	E	4.7UF		50V	C190	ECUX1H562JCW	C	5600PF	J	50V
C32	ECEA1HGE4R7	E	4.7UF		50V	C196	ECUX1H101JCG	C	100PF	J	50V
C50	ECJ2VF1C105Z	C	1UF	Z	16V	C255	ECJ2VF1H104Z	C	0.1UF	Z	50V
C51	ECJ2VF1C105Z	C	1UF	Z	16V	C256	ECJ2VF1H104Z	C	0.1UF	Z	50V
C52	ECJ2VF1C105Z	C	1UF	Z	16V	C257	ECUX1H271JCG	C	270PF	J	50V
C53	ECJ2VF1C105Z	C	1UF	Z	16V	C258	ECUX1H121JCG	C	120PF	J	50V
C55	ECJ2VF1C105Z	C	1UF	Z	16V	C259	ECUX1H150JCN	C	15PF	J	50V
C56	ECJ2VF1C105Z	C	1UF	Z	16V	C280	ECA1HENO10	E	1UF		50V
C58	ECJ2VF1C105Z	C	1UF	Z	16V	C281	ECUX1H103KBG	C	0.01UF	K	50V
C101	ECUX1H150JCN	C	15PF	J	50V	C352	ECA2CHG100	E	10UF		160V
C102	ECUX1H150JCN	C	15PF	J	50V	C353	ECQV1474JZ	P	0.47UF	J	100V
C104	ECUX1H103KBG	C	0.01UF	K	50V	C369	ECA1HHG470	E	47UF		50V
C108	ECUX1H101JCG	C	100PF	J	50V	C370	ECUX1H361JCG	C	360PF	J	50V
C110	ECJ2VF1H104Z	C	0.1UF	Z	50V	C371	ECKD2H471KB5	C	470PF	K	500V
C111	ECA0JHG471	E	470UF		6.3V	C372	ECUX1H080DCN	C	8PF	D	50V
C113	ECUX1C104KBX	C	0.1UF	K	16V	C373	ECEA2EGE100	E	10UF		250V
C114	ECUX1H102KBN	C	1000PF	K	50V	C375	ECUX1H103KBG	C	0.01UF	K	50V
C115	ECUX1H102KBN	C	1000PF	K	50V	C376	ECA1CHG221	E	220UF		16V
C117	ECJ2VF1H104Z	C	0.1UF	Z	50V	C377	ECEA1EGE330	E	33UF		25V
C118	ECJ2VF1H104Z	C	0.1UF	Z	50V	C380	ECQE2104KF	P	0.1UF	K	200V
C119	ECUX1H222JCX	C	2200PF	J	50V	C440	ECA1EHG222	E	2200UF		25V
C122	ECUX1C105KBW	C	1UF	K	16V	C441	TACCC1H100MT	E	10UF		50V
C123	ECJ2VF1H104Z	C	0.1UF	Z	50V	C444	TACCC1H101MT	E	100UF		50V
C124	ECUX1H103KBG	C	0.01UF	K	50V	C445	TACCC1H101MT	E	100UF		50V
C125	ECJ2VF1H104Z	C	0.1UF	Z	50V	C446	ECUX1H102KBN	C	1000PF	K	50V
C126	ECUX1H472KBG	C	4700PF	K	50V	C447	ECA1EHG222	E	2200UF		25V
C130	ECEV1CG100G	E	10UF		16V	C448	ECQV1473JM	P	0.047UF	J	100V
C131	ECA0JHG471	E	470UF		6.3V	C449	ECUX1H103KBG	C	0.01UF	K	50V
C132	ECJ2VF1H104Z	C	0.1UF	Z	50V	C450	ECQE1474KF	P	0.47UF	K	100V
C133	ECEV1CG100G	E	10UF		16V	C451	ECQE1563KF	P	0.056UF	K	100V
C134	ECJ2VF1H104Z	C	0.1UF	Z	50V	C501	TACBH2E224MT	C	0.22UF	M	250V
C137	ECJ2VF1H104Z	C	0.1UF	Z	50V	C503	ECJ2VF1H104Z	C	0.1UF	Z	50V
C138	ECEV1CG100G	E	10UF		16V	C504	ECA2AHG100	E	10UF		100V
C139	ECJ2VF1H104Z	C	0.1UF	Z	50V	C505	ECJ2VF1C105Z	C	1UF	Z	16V
C140	ECJ2VF1H104Z	C	0.1UF	Z	50V	C506	ECJ2VF1H104Z	C	0.1UF	Z	50V
C141	ECJ2VF1H104Z	C	0.1UF	Z	50V	C508	ECUX1E473KBX	C	0.047UF	K	25V
C143	ECUX1H101JCG	C	100PF	J	50V	C530	ECA2EHG2R2	E	2.2UF		250V
C144	ECUX1H101JCG	C	100PF	J	50V	C551	ECA1VHG101	E	100UF		35V
C145	ECJ2VF1H104Z	C	0.1UF	Z	50V	C552	TACBN2A332KT	C	3300PF	K	100V
C151	ECJ2VF1H104Z	C	0.1UF	Z	50V	C553	ECWH20222HV	PP	2200PF	H	1.5KV
C152	ECJ2VF1H104Z	C	0.1UF	Z	50V	C554	ECWH20222HV	PP	2200PF	H	1.5KV
C153	ECUX1C224KBX	C	0.22UF	K	16V	C555	ECQE2335KF	P	3.3UF	K	200V
C154	ECJ2VF1H104Z	C	0.1UF	Z	50V	C561	ECWF2824HBB	PP	0.82UF	H	200V
C155	ECJ2VF1H104Z	C	0.1UF	Z	50V	C563	ECWF2364HBB	PP	0.36UF	H	200V
C163	ECUX1H151JCG	C	150PF	J	50V	C565	ECWF2154HBB	PP	0.15UF	H	200V
C164	ECUX1H151JCG	C	150PF	J	50V	C567	ECWF2185HBB	PP	1.8UF	H	200V
C166	ECUX1H151JCG	C	150PF	J	50V	C568	ECWF2154HBB	PP	0.15UF	H	200V
C167	ECUX1H151JCG	C	150PF	J	50V	C569	ECWF2154HBB	PP	0.15UF	H	200V
C168	ECUX1H151JCG	C	150PF	J	50V	C574	ECKD2H102KB5	C	1000PF	K	500V
C169	ECUX1C224KBX	C	0.22UF	K	16V	C575	ECKD2H102KB5	C	1000PF	K	500V
C170	ECUX1H151JCG	C	150PF	J	50V	C578	ECA1VHG470	E	47UF		35V
C171	ECEV1CG470G	E	47UF		16V	C590	ECUX1H103KBG	C	0.01UF	K	50V
C173	ECJ2VF1H104Z	C	0.1UF	Z	50V	C601	ECQF6102JZ	PP	1000PF	J	600V
C174	ECA1CHG471	E	470UF		16V	C602	ECQF6392JZ	PP	3900PF	J	600V
C179	ECJ2VF1H104Z	C	0.1UF	Z	50V	C651	ECEA1HGE4R7	E	4.7UF		50V
C183	ECJ2VF1H104Z	C	0.1UF	Z	50V	C652	ECA2EHG100	E	10UF		250V
C184	ECEV1CG100G	E	10UF		16V	C653	ECA2CHG100	E	10UF		160V
C185	ECJ2VF1H104Z	C	0.1UF	Z	50V	C654	ECA2CHG4R7	E	4.7UF		160V
C186	ECEV1CG100G	E	10UF		16V	C655	ECQV1H225JL	P	2.2UF	J	50V
C187	ECUX1H562JCW	C	5600PF	J	50V	C656	ECUX1H103KBG	C	0.01UF	K	50V
C188	ECUX1H562JUW	C	5600PF	J	50V	C657	ECUX1H103KBG	C	0.01UF	K	50V
C189	ECUX1H562JCW	C	5600PF	J	50V	C672	ECEA25V4R7T	E	4.7UF		25V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C674	ECQV1H105JL	P 1UF J 50V	C886	ECUX1H222KBN	C 2200PF K 50V
C675	ECQB1H104JF	P 0.1UF J 50V	C887	ECUX1H681KBN	C 680PF K 50V
C682	ECJ2VF1H104Z	C 0.1UF Z 50V	C888	TACBU2E333KT	C 0.033UF K 250V
C683	ECJ2VF1H104Z	C 0.1UF Z 50V	C889	ECQE2684KF	P 0.68UF K 200V
C684	ECJ2VF1H104Z	C 0.1UF Z 50V	C890	ECEA1HGE4R7	E 4.7UF 50V
C706	ECA1EEN100	E 10UF 25V	C891	TAC1102A331T	E 330UF 100V
△ C801	ECQU2A334MVZ	PP 0.33UF M 250V	C893	ECUX1H561JCX	C 560PF J 50V
△ C804	ECKDRS472MEY	C 4700PF M 50V	C894	ECJ2VF1H104Z	C 0.1UF Z 50V
△ C805	ECKDRS472MEY	C 4700PF M 25V	C896	ECUX1E104KBX	C 0.1UF K 25V
△ C806	ECQU2A104MNF	PP 0.1UF M 250V	C897	ECUX1H472KBM	C 4700PF K 50V
△ C807	ECQU2A224MNF	PP 0.22UF M 250V	C898	ECA2EHG470	E 47UF 250V
C819	ECQE2154KF	P 0.15UF K 200V	C899	ECUX1E104KBX	C 0.1UF K 25V
C820	ECUX1C105KBW	C 1UF K 16V	C902	ECUX1H104ZFW	C 0.1UF Z 50V
C821	TAC1094Z391A	E 390UF 400V	C1001	ECUX1H103KBG	C 0.01UF K 50V
C822	ECQE2154KF	P 0.15UF K 200V	C1002	TACCLOJ227MT	E 220UF 6.3V
C823	ECKD3A271KBP	C 270PF K 1KV	C1003	ECUX1H103KBG	C 0.01UF K 50V
C825	ECEA1VGE330	E 33UF 35V	C1004	ECUX1H101JCG	C 100PF J 50V
C828	ECUX1H222KBN	C 2200PF K 50V	C1011	ECUX1H103KBG	C 0.01UF K 50V
△ C831	ECKDRS332MEY	C 3300PF M 6.3V	C1012	TACCLOJ227MT	E 220UF 6.3V
△ C832	ECKDRS332MEY	C 3300PF M 50V	C1013	ECUX1H103KBG	C 0.01UF K 50V
C833	ECJ2VF1H104Z	C 0.1UF Z 50V	C1014	ECUX1H101JCG	C 100PF J 50V
C834	ECUX1H222KBN	C 2200PF K 50V	C1020	ECUX1H103KBG	C 0.01UF K 50V
C835	ECQB1H222JF	P 2200PF J 50V	C1021	ECA1HEN4R7	E 4.7UF 50V
C836	ECUX1H221KBN	C 220PF K 50V	C1022	ECUX1H103KBG	C 0.01UF K 50V
C837	ECEA1HGE2R2	E 2.2UF 50V	C1030	ECUX1H103KBG	C 0.01UF K 50V
C839	ECUX1H222KBN	C 2200PF K 50V	C1031	ECEA1EGE100	E 10UF 25V
C841	ECEA1EGE101	E 100UF 25V	C1032	ECUX1H103KBG	C 0.01UF K 50V
C842	ECUX1H104ZFW	C 0.1UF Z 50V	C1033	ECUX1H103KBG	C 0.01UF K 50V
C843	ECEA1EGE330	E 33UF 25V	C1034	ECJ2VF1C105Z	C 1UF Z 16V
C844	ECJ2VF1H104Z	C 0.1UF Z 50V	C1041	ECUX1H680GCG	C 68PF G 50V
C845	ECEA1EGE100	E 10UF 25V	C1042	ECUX1H150GCN	C 15PF G 50V
C846	ECUX1H822KBG	C 8200PF K 50V	C1043	ECUX1H040CCN	C 4PF C 50V
C848	ECEA1EGE330	E 33UF 25V	C1050	TACBN2A102KT	C 1000PF K 100V
C851	TACCC1C102MT	E 1000UF 16V	C1051	TACBN2A103KT	C 0.01UF K 100V
C852	ECQE1474KF	P 0.47UF K 100V	C1052	ECEA2AGE100	E 10UF 100V
C853	ECEA1CGE470	E 47UF 16V	C1053	TACBH2A474MT	C 0.47UF M 100V
C858	ECJ2VF1H104Z	C 0.1UF Z 50V	C1055	TACBJ2H222KT	C 2200PF K 500V
C859	ECA2EHG101	E 100UF 250V	C1065	TACBG2E683KT	C 0.068UF K 250V
C860	TACBK2A224MT	C 0.22UF M 100V	C1066	ECEA2CGE010	E 1UF 160V
C861	ECOS2EA221CB	E 220UF 250V	C1067	ECUX1H470JCG	C 47PF J 50V
C862	TACCC2A471MB	E 470UF 100V	C1068	ECUX1H100CCN	C 10PF C 50V
C863	TAC11035102T	E 1000UF 35V	C1101	ECUX1H103KBG	C 0.01UF K 50V
C864	TACCC1E222MT	E 2200UF 25V	C1102	TACCLOJ227MT	E 220UF 6.3V
C865	ECEA1CGE102	E 1000UF 16V	C1103	ECUX1H103KBG	C 0.01UF K 50V
C866	ECEA1CGE102	E 1000UF 16V	C1104	ECUX1H101JCG	C 100PF J 50V
C867	TACBK2A224MT	C 0.22UF M 100V	C1111	ECUX1H103KBG	C 0.01UF K 50V
C868	ECEA1EGE222	E 2200UF 25V	C1112	TACCLOJ227MT	E 220UF 6.3V
C869	ECA1CHG331	E 330UF 16V	C1113	ECUX1H103KBG	C 0.01UF K 50V
C870	ECA1CHG331	E 330UF 16V	C1114	ECUX1H101JCG	C 100PF J 50V
C872	ECUX1C224KBW	C 0.22UF K 16V	C1120	ECUX1H103KBG	C 0.01UF K 50V
C874	ECA1HHG470	E 47UF 50V	C1121	ECA1HEN4R7	E 4.7UF 50V
C875	TACCB2A331MA	E 330UF 100V	C1122	ECUX1H103KBG	C 0.01UF K 50V
C876	ECUX1H103KBG	C 0.01UF K 50V	C1130	ECUX1H103KBG	C 0.01UF K 50V
C877	ECA1HHG220	E 22UF 50V	C1131	ECEA1EGE100	E 10UF 25V
C878	ECA1CHG101	E 100UF 16V	C1132	ECUX1H103KBG	C 0.01UF K 50V
C879	ECA1EHG470	E 47UF 25V	C1133	ECUX1H103KBG	C 0.01UF K 50V
C880	ECEA1EGE220	E 22UF 25V	C1134	ECJ2VF1C105Z	C 1UF Z 16V
C881	ECA1HHG100	E 10UF 50V	C1141	ECUX1H680GCG	C 68PF G 50V
C882	ECEA1HGE100	E 10UF 50V	C1142	ECUX1H150GCN	C 15PF G 50V
C883	ECQB1H224JF	P 0.22UF J 50V	C1143	ECUX1H030CCN	C 3PF C 50V
C884	ECUX1H102KBN	C 1000PF K 50V	C1150	TACBN2A102KT	C 1000PF K 100V
C885	ECKD2H152KB5	C 1500PF K 500V	C1151	TACBN2A103KT	C 0.01UF K 100V

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C1153	TACBH2A474MT	C 0.47UF M 100V	C1349	TCUX1C225ZFN	C 2.2UF Z 16V
C1155	TACBJ2H222KT	C 2200PF K 500V	C1351	TACBJ2H222KT	C 2200PF K 500V
C1165	TACBG2E683KT	C 0.068UF K 250V	C1355	TACBJ2H102KT	C 1000PF K 500V
C1166	ECEA2CGE010	E 1UF 160V	C1356	TACBJ2H101KT	C 100PF K 500V
C1167	ECUX1H470JCG	C 47PF J 50V	C1357	ECKD3D272KBP	C 2700PF K 2KV
C1168	ECUX1H100CCN	C 10PF C 50V	C1358	TACBJ2J222KT	C 2200PF K 630V
C1201	ECUX1H103KBG	C 0.01UF K 50V	C1359	TACBJ2J222KT	C 2200PF K 630V
C1202	TACCLOJ227MT	E 220UF 6.3V	C1360	TACBJ2J222KT	C 2200PF K 630V
C1203	ECUX1H103KBG	C 0.01UF K 50V	C1365	TCUX2H110JCM	C 11PF J 500V
C1204	ECUX1H101JCG	C 100PF J 50V	C1370	TACBJ2H102KT	C 1000PF K 500V
C1211	ECUX1H103KBG	C 0.01UF K 50V	C1372	ECUX1H221KBN	C 220PF K 50V
C1212	TACCLOJ227MT	E 220UF 6.3V	C1381	ECJ2VF1H104Z	C 0.1UF Z 50V
C1213	ECUX1H103KBG	C 0.01UF K 50V	C1391	TACBG2E683KT	C 0.068UF K 250V
C1214	ECUX1H101JCG	C 100PF J 50V	C1402	ECUX1H223KBN	C 0.022UF K 50V
C1220	ECUX1H103KBG	C 0.01UF K 50V	C1403	ECJ2VF1E224Z	C 0.22UF Z 25V
C1221	ECA1HEN4R7	E 4.7UF 50V	C1404	ECUX1H221KBN	C 220PF K 50V
C1222	ECUX1H103KBG	C 0.01UF K 50V	C1405	ECUX1H104KBW	C 0.1UF K 50V
C1230	ECUX1H103KBG	C 0.01UF K 50V	C1406	ECEA1AGE101	E 100UF 10V
C1231	ECEA1EGE100	E 10UF 25V	C1408	ECUX1H220JCN	C 22PF J 50V
C1232	ECUX1H103KBG	C 0.01UF K 50V	C1409	ECJ2VF1C105Z	C 1UF Z 16V
C1233	ECUX1H103KBG	C 0.01UF K 50V	C1410	ECEA1EGE100	E 10UF 25V
C1234	ECJ2VF1C105Z	C 1UF Z 16V	C1412	ECEA1HGE3R3	E 3.3UF 50V
C1241	ECUX1H680GCG	C 68PF G 50V	C1414	ECEA1HGE3R3	E 3.3UF 50V
C1242	ECUX1H150GCN	C 15PF G 50V		RESISTORS	
C1250	TACBN2A102KT	C 1000PF K 100V	C1353	ERJ8GCRYOR00	M 0 OHM 1/8W
C1251	TACBN2A103KT	C 0.01UF K 100V	J601	ERJ6GEYOR00	M 0 OHM 1/10W
C1252	ECEA2AGE100	E 10UF 100V	J602	ERJ6GEYOR00	M 0 OHM 1/10W
C1253	TACBH2A474MT	C 0.47UF M 100V	J603	ERJ6GEYOR00	M 0 OHM 1/10W
C1255	TACBJ2H222KT	C 2200PF K 500V	J604	ERJ6GEYOR00	M 0 OHM 1/10W
C1265	TACBG2E683KT	C 0.068UF K 250V	J605	ERJ6GEYOR00	M 0 OHM 1/10W
C1266	ECEA2CGE010	E 1UF 160V	J606	ERJ6GEYOR00	M 0 OHM 1/10W
C1267	ECUX1H470JCG	C 47PF J 50V	J607	ERJ6GEYOR00	M 0 OHM 1/10W
C1268	ECUX1H100CCN	C 10PF C 50V	J608	ERJ6GEYOR00	M 0 OHM 1/10W
C1301	TACCL1C476MT	E 470UF 16V	J609	ERJ6GEYOR00	M 0 OHM 1/10W
C1302	TACCL1H105MT	E 1UF 50V	J610	ERJ6GEYOR00	M 0 OHM 1/10W
C1304	ECUX1H103KBG	C 0.01UF K 50V	J701	ERJ8GCRYOR00	M 0 OHM 1/8W
C1305	ECUX1H103KBG	C 0.01UF K 50V	J702	ERJ8GCRYOR00	M 0 OHM 1/8W
C1306	ECUX1H103KBG	C 0.01UF K 50V	J703	ERJ8GCRYOR00	M 0 OHM 1/8W
C1310	TACCL1C476MT	E 470UF 16V	J704	ERJ8GCRYOR00	M 0 OHM 1/8W
C1312	TACCL1H105MT	E 1UF 50V	J705	ERJ8GCRYOR00	M 0 OHM 1/8W
C1313	ECEA1HGE100	E 10UF 50V	J706	ERJ8GCRYOR00	M 0 OHM 1/8W
C1314	ECJ2VF1H104Z	C 0.1UF Z 50V	J707	ERJ8GCRYOR00	M 0 OHM 1/8W
C1320	ECEA1CGE470	E 47UF 16V	J708	ERJ8GCRYOR00	M 0 OHM 1/8W
C1321	ECUX1H103KBG	C 0.01UF K 50V	J709	ERJ8GCRYOR00	M 0 OHM 1/8W
C1322	ECA1HHG100	E 10UF 50V	J710	ERJ8GCRYOR00	M 0 OHM 1/8W
C1323	ECUX1H103KBG	C 0.01UF K 50V	J712	ERJ8GCRYOR00	M 0 OHM 1/8W
C1326	ECEA1CGE471	E 470UF 16V	J713	ERJ8GCRYOR00	M 0 OHM 1/8W
C1327	ECUX1H103KBG	C 0.01UF K 50V	J714	ERJ8GCRYOR00	M 0 OHM 1/8W
C1328	ECEA1CGE471	E 470UF 16V	J715	ERJ8GCRYOR00	M 0 OHM 1/8W
C1329	ECEA1AGE101	E 100UF 10V	J716	ERJ8GCRYOR00	M 0 OHM 1/8W
C1331	ECEA1AGE101	E 100UF 10V	J717	ERJ8GCRYOR00	M 0 OHM 1/8W
C1332	ECJ2VF1E224Z	C 0.22UF Z 25V	J718	ERJ8GCRYOR00	M 0 OHM 1/8W
C1333	ECUX1H103KBG	C 0.01UF K 50V	J719	ERJ8GCRYOR00	M 0 OHM 1/8W
C1334	ECEA1CGE470	E 47UF 16V	J721	ERJ8GCRYOR00	M 0 OHM 1/8W
C1335	ECEA1CGE470	E 47UF 16V	J722	ERJ8GCRYOR00	M 0 OHM 1/8W
C1336	ECEA1CGE470	E 47UF 16V	J724	ERJ8GCRYOR00	M 0 OHM 1/8W
C1340	TCUX1C225ZFN	C 2.2UF Z 16V	J725	ERJ8GCRYOR00	M 0 OHM 1/8W
C1342	ECEA2AGE220	E 22UF 100V	J726	ERJ8GCRYOR00	M 0 OHM 1/8W
C1344	ECUX1H102KBN	C 1000PF K 50V	J727	ERJ8GCRYOR00	M 0 OHM 1/8W
C1345	ECJ2VF1H104Z	C 0.1UF Z 50V	J729	ERJ8GCRYOR00	M 0 OHM 1/8W
C1346	ECEA1EGE100	E 10UF 25V	J730	ERJ8GCRYOR00	M 0 OHM 1/8W
C1348	ECEA2CGE100	E 10UF 160V			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
J731	ERJ8GCRYOR00	M O OHM 1/8W	R134	ERJ6GEYOR00	M O OHM 1/10W
J732	ERJ8GCRYOR00	M O OHM 1/8W	R135	ERJ6GEYJ471	M 470 OHM J 1/10W
J733	ERJ8GCRYOR00	M O OHM 1/8W	R136	ERJ6GEYJ470	M 47 OHM J 1/10W
J734	ERJ8GCRYOR00	M O OHM 1/8W	R137	ERJ6GEYJ470	M 47 OHM J 1/10W
J735	ERJ8GCRYOR00	M O OHM 1/8W	R140	ERJ6GEYJ103	M 10K OHM J 1/10W
J736	ERJ8GCRYOR00	M O OHM 1/8W	R141	ERJ6GEYJ103	M 10K OHM J 1/10W
J737	ERJ8GCRYOR00	M O OHM 1/8W	R142	ERJ6GEYJ103	M 10K OHM J 1/10W
J738	ERJ8GCRYOR00	M O OHM 1/8W	R145	ERJ6GEYJ103	M 10K OHM J 1/10W
J739	ERJ8GCRYOR00	M O OHM 1/8W	R146	ERJ6GEYJ103	M 10K OHM J 1/10W
J1301	ERD25TCO	C O OHM 1/4W	R149	ERJ6GEYJ183	M 18K OHM J 1/10W
J1302	ERD25TCO	C O OHM 1/4W	R150	ERJ6GEYJ222	M 2.2K OHM J 1/10W
J1321	ERD25TCO	C O OHM 1/4W	R151	ERJ6GEYJ222	M 2.2K OHM J 1/10W
J1325	ERJ6GEYOR00	M O OHM 1/10W	R152	ERJ12YJ471	M 470 OHM J 1/2W
L1056	ERJ8GCRYOR00	M O OHM 1/8W	R153	ERJ6GEYJ222	M 2.2K OHM J 1/10W
L1156	ERJ8GCRYOR00	M O OHM 1/8W	R154	ERJ6GEYJ102	M 1K OHM J 1/10W
L1256	ERJ8GCRYOR00	M O OHM 1/8W	R155	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R10	ERDS2TJ101	C 100 OHM J 1/4W	R156	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R11	ERJ6ENF1002	M 10K OHM F 1/10W	R162	ERJ6GEYJ152	M 1.5K OHM J 1/10W
R12	ERJ6ENF4703	M 470K OHM F 1/10W	R163	ERJ6GEYJ683	M 68K OHM J 1/10W
R13	ERJ6ENF1052	M 10.5K OHM F 1/10W	R164	ERJ6GEYJ102	M 1K OHM J 1/10W
R14	ERJ6ENF3301	M 3.3K OHM F 1/10W	R165	ERJ6GEYOR00	M O OHM 1/10W
R15	ERG2SJ183	M 18K OHM J 2W	R170	ERJ6ENF2202	M 22K OHM F 1/10W
R16	ERJ6ENF2320	M 232 OHM F 1/10W	R171	ERJ6ENF5622	M 56.2K OHM F 1/10W
R18	ERG1SJ273	M 27K OHM J 1W	R172	ERJ6ENF5622	M 56.2K OHM F 1/10W
R19	ERJ6ENF4702	M 47K OHM F 1/10W	R173	ERJ6ENF6802	M 68K OHM F 1/10W
R20	ERJ6ENF4702	M 47K OHM F 1/10W	R174	ERJ6GEYJ270	M 27 OHM J 1/10W
R22	ERJ6GEYOR00	M O OHM 1/10W	R175	ERJ6GEYJ270	M 27 OHM J 1/10W
R23	ERJ6GEYJ105	M 1M OHM J 1/10W	R177	ERJ6GEYOR00	M O OHM 1/10W
R24	ERJ6ENF4703	M 470K OHM F 1/10W	R191	ERJ6GEYJ271	M 270 OHM J 1/10W
R25	ERJ6ENF1000	M 100 OHM F 1/10W	R192	ERJ6GEYJ271	M 270 OHM J 1/10W
R26	ERJ6GEYJ333	M 33K OHM J 1/10W	R193	ERJ6GEYJ471	M 470 OHM J 1/10W
R31	ERJ6GEYJ102	M 1K OHM J 1/10W	R194	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R32	ERJ8GCRYK2R7	M 2.7 OHM K 1/8W	R195	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R33	ERG1SJ100	M 10 OHM J 1W	R196	ERJ6GEYJ471	M 470 OHM J 1/10W
R50	ERJ6GEYJ102	M 1K OHM J 1/10W	R197	ERJ6GEYJ103	M 10K OHM J 1/10W
R51	ERJ6GEYJ102	M 1K OHM J 1/10W	R200	ERJ6GEYJ471	M 470 OHM J 1/10W
R52	ERJ6GEYJ102	M 1K OHM J 1/10W	R201	ERJ6GEYJ101	M 100 OHM J 1/10W
R53	ERJ6GEYJ102	M 1K OHM J 1/10W	R204	ERJ6GEYJ471	M 470 OHM J 1/10W
R55	ERJ6GEYJ102	M 1K OHM J 1/10W	R205	ERJ6GEYJ101	M 100 OHM J 1/10W
R56	ERJ6GEYJ102	M 1K OHM J 1/10W	R208	ERJ6GEYJ471	M 470 OHM J 1/10W
R58	ERJ6GEYJ102	M 1K OHM J 1/10W	R209	ERJ6GEYJ471	M 470 OHM J 1/10W
R101	ERJ6GEYJ103	M 10K OHM J 1/10W	R210	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R102	ERJ6GEYJ103	M 10K OHM J 1/10W	R213	ERJ6GEYOR00	M O OHM 1/10W
R103	ERJ6GEYJ103	M 10K OHM J 1/10W	R214	ERJ6GEYOR00	M O OHM 1/10W
R104	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R220	ERJ6GEYOR00	M O OHM 1/10W
R105	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R221	ERJ6GEYOR00	M O OHM 1/10W
R106	ERJ6GEYJ103	M 10K OHM J 1/10W	R222	ERJ6GEYJ103	M 10K OHM J 1/10W
R107	ERJ6GEYJ103	M 10K OHM J 1/10W	R223	ERJ6GEYJ123	M 12K OHM J 1/10W
R109	ERJ6GEYJ103	M 10K OHM J 1/10W	R224	ERJ6GEYJ563	M 56K OHM J 1/10W
R110	ERJ6GEYJ103	M 10K OHM J 1/10W	R240	ERJ6GEYJ271	M 270 OHM J 1/10W
R111	ERJ6GEYJ152	M 1.5K OHM J 1/10W	R241	ERJ6GEYJ271	M 270 OHM J 1/10W
R112	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R242	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R115	ERJ6GEYOR00	M O OHM 1/10W	R243	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R120	ERJ6GEYJ272	M 2.7K OHM J 1/10W	R250	ERJ6GEYOR00	M O OHM 1/10W
R121	ERJ6GEYJ822	M 8.2K OHM J 1/10W	R255	ERJ6GEYJ272	M 2.7K OHM J 1/10W
R123	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R256	ERJ6GEYJ121	M 120 OHM J 1/10W
R124	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R257	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R125	ERJ6GEYJ335	M 3.3M OHM J 1/10W	R258	ERJ6GEYJ561	M 560 OHM J 1/10W
R127	ERJ6GEYOR00	M O OHM 1/10W	R261	ERJ6GEYJ683	M 68K OHM J 1/10W
R131	ERJ6GEYJ272	M 2.7K OHM J 1/10W	R271	ERJ6GEYJ223	M 22K OHM J 1/10W
R132	ERJ6GEYJ272	M 2.7K OHM J 1/10W	R272	ERJ6GEYJ223	M 22K OHM J 1/10W
R133	ERJ6GEYOR00	M O OHM 1/10W	R273	ERJ6GEYJ102	M 1K OHM J 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R274	ERJ6GEYJ102	M 1K OHM J 1/10W	R544	ERJ6ENF1822	M 18.2K OHM F 1/10W
R280	ERJ6GEYJ152	M 1.5K OHM J 1/10W	R545	ERG3FJ470	M 47 OHM J 3W
R281	ERJ6GEYJ104	M 100K OHM J 1/10W	R546	ERG3FJ470	M 47 OHM J 3W
R282	ERJ6GEYJ102	M 1K OHM J 1/10W	R547	ERJ6GEYJ470	M 47 OHM J 1/10W
R283	ERJ6GEYJ331	M 330 OHM J 1/10W	R548	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R284	ERJ6GEYJ331	M 330 OHM J 1/10W	R549	ERG2SJ561	M 560 OHM J 2W
R285	ERJ6GEYJ102	M 1K OHM J 1/10W	R550	ERQ12AJR47	F 0.47 OHM J 1/2W
R286	ERJ6GEYJ561	M 560 OHM J 1/10W	R551	ERX3FJX1R8D	M 1.8 OHM J 3W
R291	ERJ6GEYJ223	M 22K OHM J 1/10W	R552	ERX3FJX1R8D	M 1.8 OHM J 3W
R292	ERJ6GEYJ223	M 22K OHM J 1/10W	R554	ERX3FJX6R8D	M 6.8 OHM J 3W
R293	ERJ6GEYJ102	M 1K OHM J 1/10W	R555	ERD25TC0	C 0 OHM 1/4W
R294	ERJ6GEYJ102	M 1K OHM J 1/10W	R560	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R350	ERQ14AJ330	F 33 OHM J 1/4W	R561	ERJ6GEYJ100	M 10 OHM J 1/10W
R353	ERDS1FJ100	C 10 OHM J 1/2W	R563	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R354	ERDS1FJ100	C 10 OHM J 1/2W	R564	ERJ6GEYJ100	M 10 OHM J 1/10W
R355	ERG2SJ270	M 27 OHM J 2W	R566	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R371	ERDS1FJ364	C 360K OHM J 1/2W	R567	ERJ6GEYJ100	M 10 OHM J 1/10W
R372	ERJ8GCVJ475	M 4.7M OHM J 1/8W	R568	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R373	ERJ8GCVJ683	M 68K OHM J 1/8W	R569	ERJ6GEYJ100	M 10 OHM J 1/10W
R374	ERJ8ENF1101	M 1.1K OHM F 1/8W	R574	ERDS1FJ181	C 180 OHM J 1/2W
R375	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R575	ERQ12AJ271	F 270 OHM J 1/2W
R380	ERD25FJ102K	C 1K OHM J 1/4W	R595	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R381	ERJ6ENF2051	M 2.05K OHM F 1/10W	R596	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R382	ERJ6ENF6982	M 69.8K OHM F 1/10W	R597	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R384	ERJ6ENF2871	M 2.87K OHM F 1/10W	R602	ERX1SJR33	M 0.33 OHM J 1W
R385	ERJ8GCVJ121	M 120 OHM J 1/8W	R603	ERX1SJR27	M 0.27 OHM J 1W
R386	ERG3FJ103	M 10K OHM J 3W	R604	TARRS5B101J2	M 100 OHM J 5W
R387	ERJ8GCVJ302	M 3K OHM J 1/8W	R605	TARRS5B101J2	M 100 OHM J 5W
R389	ERJ8GCVJ102	M 1K OHM J 1/8W	R648	ERJ6ENF8060	M 806 OHM F 1/10W
R390	ERJ6ENF1071	M 1.07K OHM F 1/10W	R649	ERJ6GEYOR00	M 0 OHM 1/10W
R391	ERJ6GEYJ103	M 10K OHM J 1/10W	R650	ERJ8GCVOR00	M 0 OHM 1/8W
R392	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R651	ERQ14AJ100	F 10 OHM J 1/4W
R393	ERG1SJ273	M 27K OHM J 1W	R652	ERQ14AJR47HK	F 0.47 OHM J 1/4W
R407	ERJ6ENF2432	M 24.3K OHM F 1/10W	R653	ERQ14AJR47HK	F 0.47 OHM J 1/4W
R425	ERDS2TJ222	C 2.2K OHM J 1/4W	R655	ERJ8ENF5231	M 5.23K OHM F 1/8W
R440	ERJ6GEYJ103	M 10K OHM J 1/10W	R656	ERJ6GEYJ223	M 22K OHM J 1/10W
R441	ERJ6GEYJ103	M 10K OHM J 1/10W	R657	ERJ6ENF3162	M 31.6K OHM F 1/10W
R480	ERJ6ENF1742	M 17.4K OHM F 1/10W	R658	ERJ6ENF1002	M 10K OHM F 1/10W
R481	ERJ6ENF2941	M 2.94K OHM F 1/10W	R660	ERJ6GEYJ270	M 27 OHM J 1/10W
R482	ERDS1FJ1R2	C 1.2 OHM J 1/2W	R671	EROS2CKF1333	M 133K OHM F 1/4W
R483	ERDS1FJ1R2	C 1.2 OHM J 1/2W	R672	EROS2CKF1433	M 143K OHM F 1/4W
R484	EROS2CKF1202	M 12K OHM F 1/4W	R673	ERDS2TJ474	C 470K OHM J 1/4W
R485	ERJ6GEYJ122	M 1.2K OHM J 1/10W	R680	ERJ6GEYJ153	M 15K OHM J 1/10W
R486	ERJ6ENF1872	M 18.7K OHM F 1/10W	R682	ERJ6GEYJ221	M 220 OHM J 1/10W
R487	ERDS2TJ1R0	C 1 OHM J 1/4W	R683	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R488	ERX1SG1R2	M 1.2 OHM G 1W	R684	ERJ6ENF1002	M 10K OHM F 1/10W
R489	ERX1SG1R8	M 1.8 OHM G 1W	R685	ERJ6ENF2372	M 23.7K OHM F 1/10W
R501	ERX2SJ3R3	M 3.3 OHM J 2W	R687	ERJ6GEYJ333	M 33K OHM J 1/10W
R502	ERG1SJ390	M 39 OHM J 1W	R720	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R503	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R721	ERJ6GEYJ164	M 160K OHM J 1/10W
R504	ERJ6GEYJ153	M 15K OHM J 1/10W	R722	ERJ6GEYJ182	M 1.8K OHM J 1/10W
R505	ERX2SJ3R3	M 3.3 OHM J 2W	R801	ERC12AGK105	S 1M OHM K 1/2W
R506	ERD25FJ153K	C 15K OHM J 1/4W	R820	ERJ6GEYJ563	M 56K OHM J 1/10W
R507	ERJ6GEYJ392	M 3.9K OHM J 1/10W	R821	ERF2EKR22	W 0.22 OHM K 2W
R508	ERJ6GEYJ102	M 1K OHM J 1/10W	R822	TARRS3B104J2	M 100K OHM J 3W
R509	ERJ6GEYJ472	M 4.7K OHM J 1/10W	R823	ERJ6GEYJ103	M 10K OHM J 1/10W
R527	ERJ6GEYOR00	M 0 OHM 1/10W	R824	ERJ6ENF1211	M 1.21K OHM F 1/10W
R530	ERQ12AJ270	F 27 OHM J 1/2W	R825	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R531	ERJ12YJ5R6	M 5.6 OHM J 1/2W	R826	ERJ6ENF7152	M 71.5K OHM F 1/10W
R532	ERJ12YJ5R6	M 5.6 OHM J 1/2W	R827	ERDS1FJ394	C 390K OHM J 1/2W
R542	ERJ6ENF7871	M 7.87K OHM F 1/10W	R828	ERDS1FJ394	C 390K OHM J 1/2W
R543	ERJ6ENF6491	M 6.49K OHM F 1/10W	R829	ERJ8GCVJ223	M 22K OHM J 1/8W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R830	ERJ6GEYJ273	M 27K OHM J 1/10W	R898	ERJ6ENF2001	M 2K OHM F 1/10W
R831	ERD25FJ560K	C 56 OHM J 1/4W	R899	ERJ6GEYJ103	M 10K OHM J 1/10W
R832	ERJ6GEYJ220	M 22 OHM J 1/10W	R902	ERJ6GEYJ103	M 10K OHM J 1/10W
R833	ERD25FJ223K	C 22K OHM J 1/4W	R903	ERJ6GEYJ102	M 1K OHM J 1/10W
R834	ERJ8GICYJ222	M 2.2K OHM J 1/8W	R905	ERJ6GEYJ331	M 330 OHM J 1/10W
R835	ERJ8GICYJ222	M 2.2K OHM J 1/8W	R906	ERJ6GEYJ331	M 330 OHM J 1/10W
R836	ERG3FJ820	M 82 OHM J 3W	R909	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R837	ERJ6ENF1400	M 140 OHM F 1/10W	R913	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R838	ERJ6GEYJ222	M 2.2K OHM J 1/10W	R961	ERJ6GEYOR00	M 0 OHM 1/10W
R839	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R975	ERJ6GEYJ101	M 100 OHM J 1/10W
R840	ERJ6GEYJ103	M 10K OHM J 1/10W	R978	ERJ6GEYJ101	M 100 OHM J 1/10W
R841	ERDS1FJ104	C 100K OHM J 1/2W	R979	ERJ6GEYJ101	M 100 OHM J 1/10W
R842	ERJ6GEYJ180	M 18 OHM J 1/10W	R988	ERJ6GEYJ102	M 1K OHM J 1/10W
R843	ERJ6GEYJ103	M 10K OHM J 1/10W	R990	ERDS2TJ103	C 10K OHM J 1/4W
R847	ERJ6GEYK2R2	M 2.2 OHM K 1/10W	R991	ERDS2TJ103	C 10K OHM J 1/4W
R849	ERDS2TJ122	C 1.2K OHM J 1/4W	R992	ERJ6GEYOR00	M 0 OHM 1/10W
R850	ERJ6GEYJ102	M 1K OHM J 1/10W	R993	ERJ6GEYOR00	M 0 OHM 1/10W
R853	ERJ6GEYJ271	M 270 OHM J 1/10W	R1001	TAJADQ76R8FV	M 76.8 OHM F 1/3W
R854	ERJ6GEYJ820	M 82 OHM J 1/10W	R1002	ERJ6GEYJ223	M 22K OHM J 1/10W
R855	ERJ6GEYJ102	M 1K OHM J 1/10W	R1003	ERJ6GEYJ123	M 12K OHM J 1/10W
R856	ERA6YEB104	M 100K OHM B 1/10W	R1004	ERJ6ENF3900	M 390 OHM F 1/10W
R857	ERA6YEB302	M 3K OHM B 1/10W	R1007	ERJ6ENF11R5	M 11.5 OHM F 1/10W
R858	ERJ6GEYJ102	M 1K OHM J 1/10W	R1011	TAJADQ76R8FV	M 76.8 OHM F 1/3W
R859	ERD25FJ391K	C 390 OHM J 1/4W	R1012	ERJ6GEYJ223	M 22K OHM J 1/10W
R860	ERJ6GEYJ103	M 10K OHM J 1/10W	R1013	ERJ6GEYJ123	M 12K OHM J 1/10W
R861	ERQ12AJR33HK	F 0.33 OHM J 1/2W	R1014	ERJ6ENF3900	M 390 OHM F 1/10W
R862	TAR14CJ0R15V	M 0.15 OHM J 1/2W	R1020	TAJADQ75ROFV	M 75 OHM F 1/3W
R863	ERQ12AJR47	F 0.47 OHM J 1/2W	R1021	ERJ6GEYJ330	M 33 OHM J 1/10W
R864	ERQ12AJR12HK	F 0.12 OHM J 1/2W	R1022	ERJ8GICYJ471	M 470 OHM J 1/8W
R865	ERQ12AJR12HK	F 0.12 OHM J 1/2W	R1023	ERJ6GEYJ330	M 33 OHM J 1/10W
R866	ERQ12AJR12HK	F 0.12 OHM J 1/2W	R1030	ERJ6GEYJ330	M 33 OHM J 1/10W
R867	ERJ6GEYJ104	M 100K OHM J 1/10W	R1031	ERJ6GEYJ331	M 330 OHM J 1/10W
R868	ERQ12AJR47	F 0.47 OHM J 1/2W	R1032	ERJ6GEYJ100	M 10 OHM J 1/10W
R869	ERD25FJ471K	C 470 OHM J 1/4W	R1033	ERJ6GEYJ330	M 33 OHM J 1/10W
R870	ERDS1FJ224	C 220K OHM J 1/2W	R1040	ERJ6ENF2260	M 226 OHM F 1/10W
R871	ERJ6GEYJ183	M 18K OHM J 1/10W	R1041	ERJ6ENF29R4	M 29.4 OHM F 1/10W
R872	ERJ6ENF1822	M 18.2K OHM F 1/10W	R1042	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R873	ERJ6ENF4222	M 42.2K OHM F 1/10W	R1044	ERJ6ENF1581	M 1.58K OHM F 1/10W
R874	ERJ6GEYJ101	M 100 OHM J 1/10W	R1050	ERJ6ENF1053	M 105K OHM F 1/10W
R875	ERJ6GEYJ102	M 1K OHM J 1/10W	R1052	ERJ6GEYOR00	M 0 OHM 1/10W
R876	ERJ6GEYJ562	M 5.6K OHM J 1/10W	R1055	ERDS2TJ471	C 470 OHM J 1/4W
R877	ERJ6GEYJ753	M 75K OHM J 1/10W	R1057	ERDS1FJ330	C 33 OHM J 1/2W
R878	ERG1SJ683	M 68K OHM J 1W	R1061	ERJ6ENF2372	M 23.7K OHM F 1/10W
R879	ERJ8GICYJ332	M 3.3K OHM J 1/8W	R1062	ERJ6ENF4532	M 45.3K OHM F 1/10W
R880	EROS2CKF1211	M 1.21K OHM F 1/4W	R1065	ERJ6GEYJ221	M 220 OHM J 1/10W
R881	ERJ6ENF1821	M 1.82K OHM F 1/10W	R1066	ERJ6GEYJ103	M 10K OHM J 1/10W
R882	ERJ6ENF4531	M 4.53K OHM F 1/10W	R1067	ERDS2TJ224	C 220K OHM J 1/4W
R883	ERJ6GEYJ103	M 10K OHM J 1/10W	R1101	TAJADQ76R8FV	M 76.8 OHM F 1/3W
R884	ERJ6ENF6041	M 6.04K OHM F 1/10W	R1102	ERJ6GEYJ223	M 22K OHM J 1/10W
R885	ERJ6ENF3741	M 3.74K OHM F 1/10W	R1103	ERJ6GEYJ123	M 12K OHM J 1/10W
R886	ERJ6GEYJ103	M 10K OHM J 1/10W	R1104	ERJ6ENF1400	M 140 OHM F 1/10W
R887	ERJ6GEYJ103	M 10K OHM J 1/10W	R1107	ERJ6ENF11R5	M 11.5 OHM F 1/10W
R888	ERJ6GEYJ103	M 10K OHM J 1/10W	R1111	TAJADQ76R8FV	M 76.8 OHM F 1/3W
R889	ERJ6GEYJ391	M 390 OHM J 1/10W	R1112	ERJ6GEYJ223	M 22K OHM J 1/10W
R890	ERX2SJ1R0	M 1 OHM J 2W	R1113	ERJ6GEYJ123	M 12K OHM J 1/10W
R891	ERJ6GEYJ103	M 10K OHM J 1/10W	R1114	ERJ6ENF1400	M 140 OHM F 1/10W
R892	ERJ6ENF4420	M 442 OHM F 1/10W	R1120	TAJADQ75ROFV	M 75 OHM F 1/3W
R893	ERDS1FJ224	C 220K OHM J 1/2W	R1121	ERJ6GEYJ330	M 33 OHM J 1/10W
R894	ERJ6GEYJ102	M 1K OHM J 1/10W	R1122	ERJ8GICYJ471	M 470 OHM J 1/8W
R895	ERJ6GEYJ101	M 100 OHM J 1/10W	R1123	ERJ6GEYJ330	M 33 OHM J 1/10W
R896	ERJ6GEYJ332	M 3.3K OHM J 1/10W	R1130	ERJ6GEYJ330	M 33 OHM J 1/10W
R897	ERJ6GEYJ225	M 2.2M OHM J 1/10W	R1131	ERJ6GEYJ331	M 330 OHM J 1/10W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R1132	ERJ6GEYJ100	M 10 OHM J 1/10W	R1338	ERJ6GEYJ123	M 12K OHM J 1/10W
R1133	ERJ6GEYJ330	M 33 OHM J 1/10W	R1339	ERJ6GEYJ183	M 18K OHM J 1/10W
R1140	ERJ6ENF2260	M 226 OHM F 1/10W	R1340	ERJ6GEYJ331	M 330 OHM J 1/10W
R1141	ERJ6ENF26R7	M 26.7 OHM F 1/10W	R1341	ERDS1FJ682	C 6.8K OHM J 1/2W
R1142	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R1343	ERQ14AJR47HK	F 0.47 OHM J 1/4W
R1144	ERJ6ENF1581	M 1.58K OHM F 1/10W	R1345	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R1150	ERJ6ENF1053	M 105K OHM F 1/10W	R1346	ERDS1FJ561	C 560 OHM J 1/2W
R1152	ERJ6GEYOR00	M 0 OHM 1/10W	R1347	ERJ6ENF1241	M 1.24K OHM F 1/10W
R1155	ERDS2TJ471	C 470 OHM J 1/4W	R1348	ERJ6ENF1002	M 10K OHM F 1/10W
R1157	ERDS1FJ330	C 33 OHM J 1/2W	R1355	ERDS1FJ680	C 68 OHM J 1/2W
R1161	ERJ6ENF2372	M 23.7K OHM F 1/10W	R1360	ERJ6GEYJ222	M 2.2K OHM J 1/10W
R1162	ERJ6ENF4532	M 45.3K OHM F 1/10W	R1361	ERJ6GEYJ563	M 56K OHM J 1/10W
R1165	ERJ6GEYJ221	M 220 OHM J 1/10W	R1362	ERJ6GEYJ102	M 1K OHM J 1/10W
R1166	ERJ6GEYJ103	M 10K OHM J 1/10W	R1364	ERJ6ENF6192	M 61.9K OHM F 1/10W
R1167	ERDS2TJ224	C 220K OHM J 1/4W	R1365	EROS2CKF1004	M 1M OHM F 1/4W
R1201	TAJADQ76R8FV	M 76.8 OHM F 1/3W	R1366	ERJ6GEYJ103	M 10K OHM J 1/10W
R1202	ERJ6GEYJ223	M 22K OHM J 1/10W	R1370	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R1203	ERJ6GEYJ123	M 12K OHM J 1/10W	R1371	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R1204	ERJ6ENF3900	M 390 OHM F 1/10W	R1372	ERJ6GEYJ332	M 3.3K OHM J 1/10W
R1207	ERJ6ENF11R5	M 11.5 OHM F 1/10W	R1373	ERJ6GEYJ682	M 6.8K OHM J 1/10W
R1211	TAJADQ76R8FV	M 76.8 OHM F 1/3W	R1374	ERJ6GEYJ153	M 15K OHM J 1/10W
R1212	ERJ6GEYJ223	M 22K OHM J 1/10W	R1391	ERDS1FJ125	C 1.2M OHM J 1/2W
R1213	ERJ6GEYJ123	M 12K OHM J 1/10W	R1392	ERJ6GEYJ472	M 4.7K OHM J 1/10W
R1214	ERJ6ENF3900	M 390 OHM F 1/10W	R1393	ERJ6GEYJ152	M 1.5K OHM J 1/10W
R1220	TAJADQ75R0FV	M 75 OHM F 1/3W	R1394	ERJ6GEYJ392	M 3.9K OHM J 1/10W
R1221	ERJ6GEYJ330	M 33 OHM J 1/10W	R1395	ERJ6GEYJ102	M 1K OHM J 1/10W
R1222	ERJ8GCVJ471	M 470 OHM J 1/8W	R1396	ERDS1FJ224	C 220K OHM J 1/2W
R1223	ERJ6GEYJ330	M 33 OHM J 1/10W	R1401	ERJ6GEYJ330	M 33 OHM J 1/10W
R1230	ERJ6GEYJ330	M 33 OHM J 1/10W	R1402	ERJ6GEYJ562	M 5.6K OHM J 1/10W
R1231	ERJ6GEYJ331	M 330 OHM J 1/10W	R1403	ERJ6GEYJ561	M 560 OHM J 1/10W
R1232	ERJ6GEYJ100	M 10 OHM J 1/10W	R1404	ERJ6GEYJ182	M 1.8K OHM J 1/10W
R1233	ERJ6GEYJ330	M 33 OHM J 1/10W	R1405	ERJ6GEYJ105	M 1M OHM J 1/10W
R1240	ERJ6ENF2260	M 226 OHM F 1/10W	R1412	ERJ6GEYJ101	M 100 OHM J 1/10W
R1241	ERJ6ENF30R1	M 30.1 OHM F 1/10W	R1413	ERJ6GEYJ101	M 100 OHM J 1/10W
R1242	ERJ6GEYJ682	M 6.8K OHM J 1/10W	R1414	ERJ6GEYJ102	M 1K OHM J 1/10W
R1244	ERJ6ENF1581	M 1.58K OHM F 1/10W	R1415	ERJ6GEYJ102	M 1K OHM J 1/10W
R1250	ERJ6ENF1053	M 105K OHM F 1/10W		OTHERS	
R1252	ERJ6GEYOR00	M 0 OHM 1/10W	TESA027	CRT PCB HOLDER	
R1255	ERDS2TJ471	C 470 OHM J 1/4W	THEC0159	SCREW(FOR CRT PCB HOLDER)	
R1257	ERDS1FJ330	C 33 OHM J 1/2W	THE902N	D-SUB SCREW	
R1261	ERJ6ENF2372	M 23.7K OHM F 1/10W	THTF001	SCREW(FOR IC/TR/D)	
R1262	ERJ6ENF4532	M 45.3K OHM F 1/10W	TMKK027	DOUBLE FACE TAPE	
R1265	ERJ6GEYJ221	M 220 OHM J 1/10W			
R1266	ERJ6GEYJ103	M 10K OHM J 1/10W	TMMK030	INSULATION TUBE	
R1267	ERDS2TJ224	C 220K OHM J 1/4W	TMM81417-1	CORD BAND (BIG)	
R1301	ERJ6GEYJ103	M 10K OHM J 1/10W	TSC8908-0	FERRITE CORE	
R1302	ERJ6GEYJ103	M 10K OHM J 1/10W	TSXF134	PHONO PIN CABLE(GREY)	
R1303	ERJ6GEYJ103	M 10K OHM J 1/10W	TSXF135	PHONO PIN CABLE(RED)	
R1304	ERJ6GEYJ103	M 10K OHM J 1/10W			
R1320	ERJ6GEYJ101	M 100 OHM J 1/10W	TSXF136	PHONO PIN CABLE(BLUE)	
R1321	ERJ6GEYJ101	M 100 OHM J 1/10W	TUCC5095-1	AC SOCKET BRACKET	
R1322	ERJ6GEYJ101	M 100 OHM J 1/10W	TUCC5270	SHIELD CASE(CRT PCB)	
R1325	ERJ6ENF2372	M 23.7K OHM F 1/10W	TUCC5271	SHIELD PLATE(CRT PCB)	
R1326	ERJ6ENF4641	M 4.64K OHM F 1/10W	TUWF034	BNC TERMINAL BRACKET	
R1327	ERJ6GEYJ470	M 47 OHM J 1/10W			
R1330	ERJ6GEYJ102	M 1K OHM J 1/10W	XTV3+10J	SCREW	
R1331	ERJ6GEYJ683	M 68K OHM J 1/10W	XYE3+EJ10	SCREW	
R1332	ERJ6GEYOR00	M 0 OHM 1/10W	CL1	TMM85490	LEAD CLAMPER
R1333	ERJ6ENF7501	M 7.5K OHM F 1/10W	CL2	TUXX104	WIRE CLIP
R1334	ERJ6ENF1002	M 10K OHM F 1/10W	F801	XBA2C50TB15L	FUSE(5.0A)
R1335	ERJ6GEYJ562	M 5.6K OHM J 1/10W			
R1336	ERJ6GEYJ223	M 22K OHM J 1/10W	F851	TSFX37A632	FUSE(6.3A)
			FG1	TJC85341	EARTH LUG
			FG2	TJC85341	EARTH LUG
			FG3	TJC85341	EARTH LUG

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
FG4	TJC85341	EARTH LUG	S1151	TAGDSP141T	SPARK GAP
FG5	TJC85341	EARTH LUG	S1251	TAGDSP141T	SPARK GAP
FG6	TJC85341	EARTH LUG	S1351	TAGDSP141T	SPARK GAP
FG7	TJC85341	EARTH LUG	S1355	TAGDSP201MF	SPARK GAP
FG8	TJC85341	EARTH LUG	S1371	TAGA0005	SPARK GAP
FG9	TJC85341	EARTH LUG	△ SW801	ESB91274A	SWITCH(POWER)
FG10	TJC85341	EARTH LUG	SW991	EVQ33405R	SWITCH
FG11	TJC85341	EARTH LUG	SW992	EVQ33405R	SWITCH
FG101	TJC85341	EARTH LUG	SW993	EVQ33405R	SWITCH
FG102	TJC85341	EARTH LUG	SW994	EVQ33405R	SWITCH
FG103	TJC85341	EARTH LUG	TH801	ERTB6SFL100P	THERMISTOR
FS801	TJC85502T	FUSE HOLDER	△ TH901	TAP108M7R0	POSISTOR
FS802	TJC85502T	FUSE HOLDER	TP5	TEL302-9	TERMINAL
△ N11	EMCS0464M	4P CONNECTOR	X101	TAAA0005	CRYSTAL OSCILLATOR
△ N12-	TSXX082	2P/3P CONNECTOR ASSY			
△ N22A	TJSF07805	5P CONNECTOR			
△ N22B	TJSF16305	5P CONNECTOR			
△ N100A	TJSF07820	20P CONNECTOR			
△ N100B	TJSF16320	20P CONNECTOR(L-TYPE)			
△ N101	TJS118590	2P CONNECTOR			
△ N150A	TJSF08012	12P CONNECTOR			
△ N150B	TJSF07912	12P CONNECTOR(L-TYPE)			
△ N231	TJSF10400	BNC TERMINAL			
△ N232	TJSF10400	BNC TERMINAL			
N490	TJEA022	HEAT SINK TERMINAL			
N651	TJC85342T	LUG TERMINAL			
N652	TJCD003	TERMINAL			
△ N801	TJS8A9361	AC SOCKET			
△ N861	EMCS0264M	2P CONNECTOR			
N891	TEL302-9	TERMINAL			
N893	TEL302-9	TERMINAL			
△ N903	EMCS0451ML	4P CONNECTOR(L-TYPE)			
△ N1001	TJSF10400	BNC TERMINAL			
N1002A	TJS8A4291	PHONO PIN CONNECTOR			
N1002B	TJS8A4291	PHONO PIN CONNECTOR			
△ N1004	TJSC00600	CRT SOCKET			
N1005	TJC85342T	LUG TERMINAL			
N1006	TJCD003	TERMINAL			
△ N1007	TSXX054	1P/2P CONNECTOR ASSY			
△ N1011	TJSF26615	15P CONNECTOR(D-SUB)			
△ N1015A	TJSF09554	54P CONNECTOR			
△ N1101	TJSF10400	BNC TERMINAL			
N1102A	TJS8A4291	PHONO PIN CONNECTOR			
N1102B	TJS8A4291	PHONO PIN CONNECTOR			
△ N1201	TJSF10400	BNC TERMINAL			
N1202A	TJS8A4291	PHONO PIN CONNECTOR			
N1202B	TJS8A4291	PHONO PIN CONNECTOR			
N510-1	TEL302-9	TERMINAL			
N510-2	TEL302-9	TERMINAL			
N510-3	TEL302-9	TERMINAL			
N510-4	TEL302-9	TERMINAL			
N901-1	TEL302-9	TERMINAL			
N901-2	TEL302-9	TERMINAL			
△ PC821	ON3171	PHOTO COUPLER			
△ PC822	ON3171	PHOTO COUPLER			
△ PC823	HCNW4504	PHOTO COUPLER			
Q16	UN11004	IC PROTECTOR(O.4A)			
RL571	TSEH0012	RELAY			
△ RL901	TSEH0010	RELAY			
S371	TAGA0005	SPARK GAP			
S671	TAGDSP141T	SPARK GAP			
S1051	TAGDSP141T	SPARK GAP			